Tranquility® 20
Single-Stage (TS) Series
Submittal Data

Models TSD/H/V 006 - 070
60Hz - HFC-410A

English Language/I-P Units

Revised: 17 July, 2013

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CLIMATEMASTER®
Water-Source Heat Pump Systems

SUBMITTAL DATA - I-P UNITS

Unit Designation: _____

Job Name: _____

Architect: _____

Engineer: _____

Contractor: _____

PERFORMANCE DATA

Cooling Capacity: _____ Btuh

EER: _____

Heating Capacity: _____ Btuh

COP: _____

Ambient Air Temp: _____ °F

Entering Water Temp (Clg): _____ °F

Entering Air Temp (Clg): _____ °F

Entering Water Temp (Htg): _____ °F

Entering Air Temp (Htg): _____ °F

Airflow: _____ CFM

Fan Speed or Motor/RPM/Turns: _____

Operating Weight: _____ (lb)

ELECTRICAL DATA

Power Supply: _____ Volts

_____ Phase _____ Hz

Minimum Circuit Ampacity: _____

Maximum Overcurrent Protection: _____

Tranquility® 20
Single-Stage (TS) Series
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Models TSD/H/V 006 - 070
60Hz - HFC-410A

English Language/S-I Units

Revised: 17 July, 2013

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ClimateMaster®
Water-Source Heat Pump Systems

SUBMITTAL DATA - S-I UNITS

Unit Designation: _____

Job Name: _____

Architect: _____

Engineer: _____

Contractor: _____

PERFORMANCE DATA

Cooling Capacity: _____ kW

EER: _____

Heating Capacity: _____ kW

COP: _____

Ambient Air Temp: _____ °C

Entering Water Temp (Clg): _____ °C

Entering Air Temp (Clg): _____ °C

Entering Water Temp (Htg): _____ °C

Entering Air Temp (Htg): _____ °C

Airflow: _____ l/s

Fan Speed or Motor/RPM/Turns: _____

Operating Weight: _____ (kg)

ELECTRICAL DATA

Power Supply: _____ Volts

_____ Phase _____ Hz

Minimum Circuit Ampacity: _____

Maximum Overcurrent Protection: _____

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Unit Features

THE TRANQUILITY® 20 SINGLE-STAGE (TS) SERIES

The award winning Tranquility® Series raises the bar for water-source heat pump efficiencies, features and application flexibility. Not only does the Tranquility® 20 far exceed ASHRAE 90.1 efficiencies, but it also uses EarthPure® (HFC-410A) zero ozone depletion refrigerant, making it an extremely environmentally-friendly option. Tranquility® 20 is eligible for additional LEED® (Leadership in Energy and Environmental Design) points because of the "green" technology design.

Available in sizes 1/2 tons (1.76 kW) through 6 tons (21.1 kW) with multiple cabinet options (vertical upflow, vertical downflow and horizontal) the Tranquility® 20 offers a wide range of units for most any installation. The Tranquility® 20 has an extended range refrigerant circuit, capable of ground loop (geothermal) applications as well as water loop (boiler-tower) applications. Standard features are many. Copeland scroll compressors, microprocessor controls, galvanized steel cabinet, polyester powder coat paint, stainless steel drain pan and foil-backed air handler insulation are just some of the features of the Tranquility® 20 Series.

ClimateMaster's exclusive double isolation compressor mounting system makes the Tranquility® 20 the quietest unit on the market. Compressors are mounted on specially engineered sound tested EPDM grommets or spring vibration isolaters to a heavy gauge mounting plate, which is then isolated from the cabinet base with rubber grommets for maximized vibration/sound attenuation. The unique low profile slanted control box makes installing and maintaining the unit easier than any other water-source heat pump currently in production.

Options such as ECM variable speed fan motor, coated air coil, DDC controls, internal pump and high efficiency MERV 11 two-inch (51mm) air filters allow customized design solutions. Optional high static fan motors help overcome some of the challenges associated with ductwork for retrofit installations.

The Tranquility® 20 (TS) Series Water-Source Heat Pumps are designed to meet the challenges of today's HVAC demands with one of the most innovative products available on the market.

UNIT FEATURES

- Sizes 006 (1/2 ton, 1.76 kW) through 070 (6 tons, 21.1 kW)
- EarthPure® (HFC-410A) refrigerant
- Exceeds ASHRAE 90.1 efficiencies
- Galvanized steel construction with attractive black mat polyester powder coat paint and silver accents
- Stainless steel drain pan
- Foil-backed insulation in air handler section
- Unique double isolation compressor mounting with vibration isolation for quiet operation
- Insulated divider and separate compressor/air handler compartments
- Copeland scroll compressors
- TXV metering device
- Extended range (20 to 120°F, -6.7 to 48.9°C) operation
- Microprocessor controls standard (optional DXM and/or DDC controls)
- LonWorks, BACnet, Modbus and Johnson N2 compatibility options for DDC controls
- Field convertible discharge air arrangement for horizontal units
- High static blowers available
- ECM variable speed fan motor available
- Low profile slanted control box for easy access
- Internally trapped condensate drain line (vertical units only)
- Flush securely-mounted corner post water connections (no backup wrench required)
- Unit Performance Sentinel performance monitoring system
- Eight Safeties Standard
- Wide variety of options including ClimaDry® modulating reheat, coated air coils and internal pumps

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Selection Procedure

Reference Calculations

Heating

$$LWT = EWT - \frac{HE}{GPM \times 500}$$

$$LAT = EAT + \frac{HC}{CFM \times 1.08}$$

Cooling

$$LWT = EWT + \frac{HR}{GPM \times 500}$$

$$LAT\ (DB) = EAT\ (DB) - \frac{SC}{CFM \times 1.08}$$

$$LC = TC - SC$$

$$S/T = \frac{SC}{TC}$$

Legend and Glossary of Abbreviations

BTUH = BTU(British Thermal Unit) per hour
CFM = airflow, cubic feet/minute
COP = coefficient of performance = BTUH output/BTUH input
DB = dry bulb temperature °F
EAT = entering air temperature, Fahrenheit (dry bulb/wet bulb)
EER = energy efficiency ratio = BTUH output/Watt input
MPT = male pipe thread
ESP = external static pressure (inches w.g.)
EWT = entering water temperature
GPM = water flow in U.S. gallons/minute
HE = total heat of extraction, BTUH
HC = air heating capacity, BTUH
HR = total heat of rejection, BTUH
HWC = hot water generator (desuperheater) capacity, Mbtuh
FPT = female pipe thread
KW = total power unit input, kilowatts
LAT = leaving air temperature, °F
LC = latent cooling capacity, BTUH
LWT = leaving water temperature, °F
MBTUH = 1000 BTU per hour
S/T = sensible to total cooling ratio
SC = sensible cooling capacity, BTUH
TC = total cooling capacity, BTUH
WB = wet bulb temperature °F
WPD = waterside pressure drop (psi & ft. of hd.)

Conversion Table - to convert inch-pound (English) to S-I (Metric)

Air Flow	Water Flow	Ext Static Pressure	Water Pressure Drop
Airflow (L/s) = CFM x 0.472	Water Flow (L/s) = gpm x 0.0631	ESP (Pa) = ESP (in of wg) x 249	PD (kPa) = PD (ft of hd) x 2.99

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Selection Procedure

Step 1 Determine the actual heating and cooling loads at the desired dry bulb and wet bulb conditions.

Step 2 Obtain the following design parameters: Entering water temperature, water flow rate in GPM, air flow in CFM, water flow pressure drop and design wet and dry bulb temperatures. Air flow CFM should be between 300 and 450 CFM per ton. Unit water pressure drop should be kept as close as possible to each other to make water balancing easier. Go to the appropriate tables and find the proper indicated water flow and water temperature.

Step 3 Select a unit based on total and sensible cooling conditions. Select a unit which is closest to, but no larger than, the actual cooling load.

Step 4 Enter tables at the design water flow and water temperature. Read the total and sensible cooling capacities (Note: interpolation is permissible, extrapolation is not).

Step 5 Read the heating capacity. If it exceeds the design criteria it is acceptable. It is quite normal for water source heat pumps to be selected on cooling capacity only since the heating output is usually greater than the cooling capacity.

Step 6 Determine the correction factors associated with the variable factors of dry bulb and wet bulb.

Corrected Total Cooling = tabulated total cooling x wet bulb correction.

Corrected Sensible Cooling = tabulated sensible cooling x wet/dry bulb correction.

Step 7 Compare the corrected capacities to the load requirements. Normally if the capacities are within 10% of the loads, the equipment is acceptable. It is better to undersize than oversize, as undersizing improves humidity control, reduces sound levels and extends the life of the equipment.

Step 8 When completed, calculate water temperature rise and assess the selection. If the units selected are not within 10% of the load calculations, then review what effect changing the GPM, water temperature and/or air flow and air temperature would have on the corrected capacities. If the desired capacity cannot be achieved, select the next larger or smaller unit and repeat the procedure. Remember, when in doubt, undersize slightly for best performance.

Example Equipment Selection For Cooling

Step 1 Load Determination:
Assume we have determined that the appropriate cooling load at the desired dry bulb 80°F and wet bulb 65°F conditions is as follows:

Total Cooling.....23,000 BTUH
Sensible Cooling.....17,000 BTUH
Entering Air Temp.....80°F Dry Bulb / 65°F Wet Bulb

Step 2 Design Conditions:
Similarly, we have also obtained the following design parameters:

Entering Water Temp.....90°F
Water Flow (Based upon 10°F rise in temp.) .....6.0 GPM
Air Flow.....690 CFM

Step 3, 4 & 5 HP Selection:
After making our preliminary selection (TS024), we enter the tables at design water flow and water temperature and read Total Cooling, Sens. Cooling and Heat of Rej. capacities:

Total Cooling.....25,200 BTUH
Sensible Cooling.....18,400 BTUH
Heat of Rejection.....31,100 BTUH

Step 6 & 7 Entering Air and Airflow Corrections:
Next, we determine our correction factors.

	Table	Ent Air	Air Flow	Corrected
Corrected Total Cooling =	25,200	x 0.9705	x 0.9724	= 23,782
Corrected Sens Cooling =	18,400	x 1.0809	x 0.8733	= 17,368
Corrected Heat of Reject =	31,100	x 0.9757	x 0.9728	= 29,519

Step 8 Water Temperature Rise Calculation & Assessment:

Actual Temperature Rise.....9.8°F

When we compare the Corrected Total Cooling and Corrected Sensible Cooling figures with our load requirements stated in Step 1, we discover that our selection is within +10% of our sensible load requirement. Furthermore, we see that our Corrected Total Cooling figure is within 1,000 Btuh of the actual indicated load.

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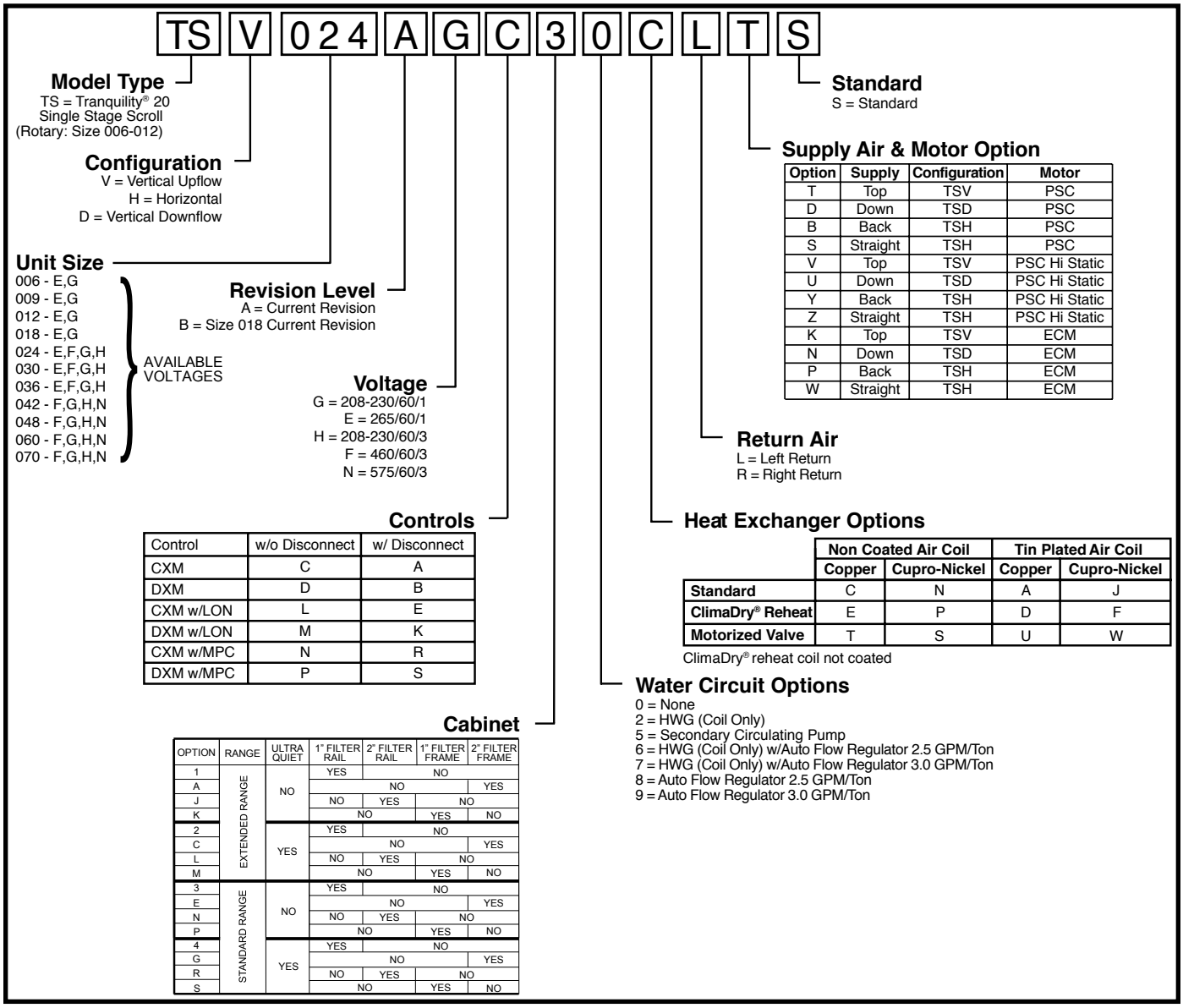
TS Series Nomenclature



Control	w/o Disconnect	w/ Disconnect
CXM	C	A
DXM	D	B
CXM w/LON	L	E
DXM w/LON	M	K
CXM w/MPC	N	R
DXM w/MPC	P	S

OPTION	RANGE	ULTRA QUIET	1" FILTER RAIL	2" FILTER RAIL	1" FILTER FRAME	2" FILTER FRAME
1	EXTENDED RANGE	NO	YES	NO		
A			NO			YES
J			NO	YES	NO	
K			NO		YES	NO
2		YES	YES	NO		
C			NO			YES
L			NO	YES	NO	
M			NO		YES	NO
3	STANDARD RANGE	NO	YES	NO		
E			NO			YES
N			NO	YES	NO	
P			NO		YES	NO
4		YES	YES	NO		
G			NO			YES
R			NO	YES	NO	
S			NO		YES	NO

Option	Supply	Configuration	Motor
T	Top	TSV	PSC
D	Down	TSD	PSC
B	Back	TSH	PSC
S	Straight	TSH	PSC
V	Top	TSV	PSC Hi Static
U	Down	TSD	PSC Hi Static
Y	Back	TSH	PSC Hi Static
Z	Straight	TSH	PSC Hi Static
K	Top	TSV	ECM
N	Down	TSD	ECM
P	Back	TSH	ECM
W	Straight	TSH	ECM

	Non Coated Air Coil		Tin Plated Air Coil	
	Copper	Cupro-Nickel	Copper	Cupro-Nickel
Standard	C	N	A	J
ClimaDry® Reheat	E	P	D	F
Motorized Valve	T	S	U	W

ClimaDry® reheat coil not coated

ClimaDry® II Option Notes:

1. Unit must have DXM control option. 460 volt unit units require a four wire power supply with neutral.
2. ClimaDry® II may not be combined with motorized water valve, internal secondary circulating pump, or automatic flow regulator options.
3. Unit minimum entering air temperature while in the dehumidification, cooling, or continuous fan modes is **70°F DB/61°F WB**. Operation below this minimum may result in nuisance faults.
4. A thermostat with dehumidification mode or thermostat and separate humidistat/dehumidistat is required for activation and control of ClimaDry® II.
5. Downflow and 575 volt units are not eligible for ClimaDry® II

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Performance Data – AHRI/ASHRAE/ISO 13256-1

ASHRAE/AHRI/ISO 13256-1. English (I-P) Units

Model	Fan Motor	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
		Cooling 86°F		Heating 68°F		Cooling 59°F		Heating 50°F		Cooling 77°F		Heating 32°F	
		Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
TSH/V006	PSC	6,300	15.7	8,000	5.4	7,400	25.5	6,300	4.4	6,700	18.5	4,800	3.4
TSH/V009	PSC	9,300	15.3	11,100	4.8	11,100	25.2	9,400	4.3	10,000	18.1	7,100	3.4
TSH/V012	PSC	11,700	15.4	13,800	4.5	13,300	24.6	11,800	4.0	12,300	18.1	9,500	3.5
TSH/V/D 018	PSC	18,600	15.0	23,000	5.2	21,300	24.8	18,600	4.5	19,500	18.4	14,500	3.6
	ECM	19,200	16.5	23,300	5.9	22,100	26.3	18,900	4.9	20,200	19.4	14,500	3.9
TSH/V/D 024*	PSC	25,100	16.2	29,600	4.9	28,600	25.7	25,000	4.3	26,300	19.1	19,000	3.7
	ECM	25,000	17.0	30,000	5.3	28,100	27.4	25,100	4.6	26,000	20.0	19,400	3.8
TSH/V/D 030	PSC	28,200	15.3	34,900	5.0	31,700	22.9	29,400	4.4	29,400	17.6	23,600	3.8
	ECM	28,600	15.6	35,200	5.3	32,200	23.9	29,400	4.6	29,800	18.0	23,700	3.9
TSH/V/D 036	PSC	33,000	16.6	39,800	5.5	37,300	25.1	32,900	4.8	34,500	19.2	25,700	3.9
	ECM	33,100	17.6	39,500	5.8	37,300	26.5	32,900	5.1	34,600	20.2	25,800	4.2
TSH/V/D 042	PSC	37,400	16.0	49,400	5.4	42,900	24.3	40,100	4.6	39,300	18.4	31,600	3.8
	ECM	37,800	17.1	48,600	5.7	44,200	27.1	39,300	4.9	40,000	20.0	30,400	4.0
TSH/V/D 048	PSC	47,000	15.3	60,000	5.0	53,900	23.3	49,000	4.4	49,900	17.6	39,000	3.7
	ECM	47,600	15.9	59,700	5.2	54,100	24.6	48,700	4.5	50,100	18.5	38,400	3.8
TSH/V/D 060	PSC	61,000	15.9	70,400	5.0	67,000	23.2	58,700	4.5	63,300	18.2	46,500	3.7
	ECM	61,000	16.4	70,800	5.2	67,200	24.3	59,100	4.6	64,000	19.0	46,700	3.8
TSH/V/D 070	PSC	67,500	14.4	85,800	5.0	77,100	21.6	69,400	4.3	70,800	16.6	54,000	3.6
	ECM	67,000	15.2	84,900	5.0	77,000	23.5	69,000	4.4	70,000	17.8	53,900	3.6

Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature
Heating capacities based upon 68°F DB, 59°F WB entering air temperature
All ratings based upon operation at lower voltage of dual voltage rated models
* Consult Factory for 265/60/1 ratings

ASHRAE/AHRI/ISO 13256-1. Metric (S-I) Units

Model	Fan Motor	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
		Cooling 30°C		Heating 20°C		Cooling 15°C		Heating 10°C		Cooling 25°C		Heating 0°C	
		Capacity kW	EER W/W	Capacity kW	COP	Capacity kW	EER Watts	Capacity kW	COP	Capacity kW	EER W/W	Capacity kW	COP
TSH/V006	PSC	1.85	4.6	2.34	5.4	2.17	7.5	1.85	4.4	1.96	5.4	1.41	3.4
TSH/V009	PSC	2.74	4.5	3.26	4.8	3.26	7.4	2.76	4.3	2.94	5.3	2.09	3.4
TSH/V012	PSC	3.43	4.5	4.05	4.5	3.90	7.2	3.46	4.0	3.60	5.3	2.78	3.5
TSH/V/D 018	PSC	5.47	4.4	6.76	5.2	6.26	7.3	5.45	4.5	5.74	5.4	4.27	3.6
	ECM	5.65	4.8	6.85	5.9	6.50	7.7	5.56	4.9	5.94	5.7	4.43	3.9
TSH/V/D 024*	PSC	7.36	4.7	8.68	4.9	8.38	7.5	7.33	4.3	7.71	5.6	5.57	3.7
	ECM	7.33	5.0	8.79	5.3	8.24	8.0	7.36	4.6	7.62	5.9	5.69	3.8
TSH/V/D 030	PSC	8.26	4.5	10.23	5.0	9.29	6.7	8.62	4.4	8.62	5.2	6.92	3.8
	ECM	8.38	4.6	10.32	5.3	9.44	7.0	8.62	4.6	8.73	5.3	6.95	3.9
TSH/V/D 036	PSC	9.67	4.9	11.66	5.5	10.93	7.4	9.64	4.8	10.11	5.6	7.53	3.9
	ECM	9.70	5.2	11.58	5.8	10.93	7.8	9.64	5.1	10.14	5.9	7.56	4.2
TSH/V/D 042	PSC	10.96	4.7	14.48	5.4	12.57	7.1	11.75	4.6	11.52	5.4	9.26	3.8
	ECM	11.08	5.0	14.24	5.7	12.95	7.9	11.52	4.9	11.72	5.9	8.91	4.0
TSH/V/D 048	PSC	13.78	4.5	17.58	5.0	15.80	6.8	14.36	4.4	14.62	5.2	11.43	3.7
	ECM	13.95	4.7	17.50	5.2	15.86	7.2	14.27	4.5	14.68	5.4	11.25	3.8
TSH/V/D 060	PSC	17.88	4.7	20.63	5.0	19.64	6.8	17.20	4.5	18.55	5.3	13.63	3.7
	ECM	17.88	4.8	20.75	5.2	19.70	7.1	17.32	4.6	18.76	5.6	13.69	3.8
TSH/V/D 070	PSC	19.78	4.2	25.15	5.0	22.60	6.3	20.34	4.3	20.75	4.9	15.83	3.6
	ECM	19.64	4.5	24.88	5.0	22.57	6.9	20.22	4.4	20.52	5.2	15.80	3.6

Cooling capacities based upon 27°C DB, 19°C WB entering air temperature
Heating capacities based upon 20°C DB, 15°C WB entering air temperature
All ratings based upon operation at lower voltage of dual voltage rated models
* Consult Factory for 265/60/1 ratings

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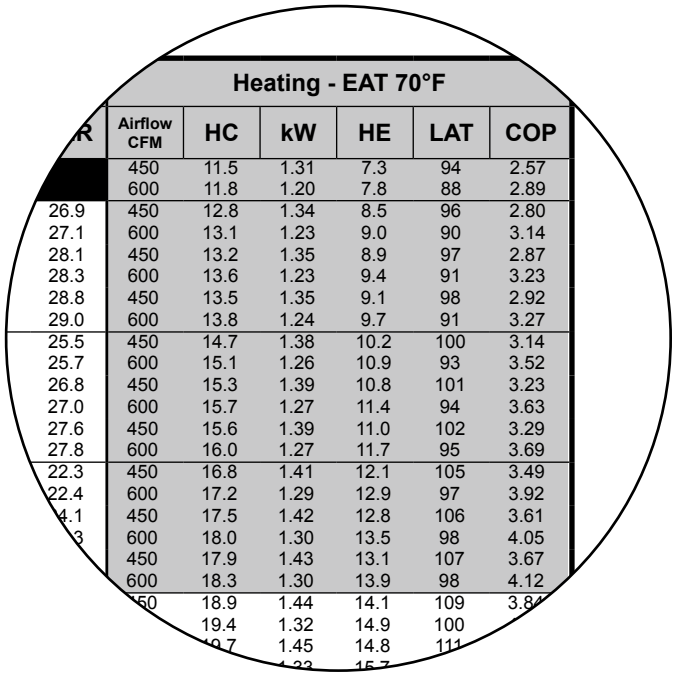
Performance Data – Selection Notes

For operation in the shaded area when water is used in lieu of an antifreeze solution, the LWT (Leaving Water Temperature) must be calculated. Flow must be maintained to a level such that the LWT is maintained above 40°F [4.4°C] when the JW3 jumper is not clipped (see example below). Otherwise, appropriate levels of a proper antifreeze solution should be used in systems with leaving water temperatures of 40°F [4.4°C] or below and the JW3 jumper should be clipped. This is due to the potential of the refrigerant temperature being as low as 32°F [0°C] with 40°F [4.4°C] LWT, which may lead to a nuisance cutout due to the activation of the Low Temperature Protection. JW3 should never be clipped for standard range equipment or systems without antifreeze.



Heating - EAT 70°F						
R	Airflow CFM	HC	kW	HE	LAT	COP
	450	11.5	1.31	7.3	94	2.57
	600	11.8	1.20	7.8	88	2.89
26.9	450	12.8	1.34	8.5	96	2.80
27.1	600	13.1	1.23	9.0	90	3.14
28.1	450	13.2	1.35	8.9	97	2.87
28.3	600	13.6	1.23	9.4	91	3.23
28.8	450	13.5	1.35	9.1	98	2.92
29.0	600	13.8	1.24	9.7	91	3.27
25.5	450	14.7	1.38	10.2	100	3.14
25.7	600	15.1	1.26	10.9	93	3.52
26.8	450	15.3	1.39	10.8	101	3.23
27.0	600	15.7	1.27	11.4	94	3.63
27.6	450	15.6	1.39	11.0	102	3.29
27.8	600	16.0	1.27	11.7	95	3.69
22.3	450	16.8	1.41	12.1	105	3.49
22.4	600	17.2	1.29	12.9	97	3.92
4.1	450	17.5	1.42	12.8	106	3.61
3	600	18.0	1.30	13.5	98	4.05
	450	17.9	1.43	13.1	107	3.67
	600	18.3	1.30	13.9	98	4.12
	50	18.9	1.44	14.1	109	3.84
		19.4	1.32	14.9	100	
		19.7	1.45	14.8	111	

Example:

At 50°F EWT (Entering Water Temperature) and 1.5 gpm/ton, a 3 ton unit has a HE of 22,500 Btuh. To calculate LWT, rearrange the formula for HE as follows:

HE = TD x GPM x 500, where HE = Heat of Extraction (Btuh); TD = temperature difference (EWT - LWT) and GPM = U.S. Gallons per Minute.

TD = HE / (GPM x 500)

TD = 22,500 / (4.5 x 500)

TD = 10°F

LWT = EWT - TD

LWT = 50 - 10 = 40°F

In this example, as long as the EWT does not fall below 50°F, the system will operate as designed. For EWTs below 50°F, higher flow rates will be required (open loop systems, for example, require at least 2 gpm/ton when EWT is below 50°F).

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Performance Data – TS H/V 006A (PSC Blower)

240 CFM Nominal (Rated) Airflow Cooling, 240 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	2.0	3.2	7.4	Operation not recommended							180	3.8	0.48	2.3	89.6	2.3
	2.0	3.2	7.4								240	3.9	0.44	2.4	85.1	2.6
30	1.0	0.3	0.7	180	6.7	3.9	0.6	0.3	7.6	25.6	180	4.6	0.50	3.0	93.4	2.7
	1.0	0.3	0.7	240	7.0	4.7	0.7	0.3	7.9	25.8	240	4.7	0.45	3.1	88.0	3.0
	1.5	1.6	3.7	180	6.9	3.9	0.6	0.3	7.8	26.9	180	4.8	0.50	3.2	94.5	2.8
	1.5	1.6	3.7	240	7.2	4.7	0.7	0.3	8.1	27.1	240	4.9	0.46	3.3	88.9	3.1
	2.0	3.0	6.9	180	7.0	4.0	0.6	0.3	7.9	27.7	180	4.9	0.50	3.3	95.0	2.8
	2.0	3.0	6.9	240	7.3	4.8	0.7	0.3	8.2	27.9	240	5.0	0.46	3.5	89.3	3.2
40	1.0	0.3	0.7	180	7.0	4.2	0.6	0.3	7.9	24.8	180	5.4	0.51	3.7	97.8	3.1
	1.0	0.3	0.7	240	7.3	5.0	0.7	0.3	8.2	25.0	240	5.6	0.47	4.0	91.4	3.5
	1.5	1.5	3.5	180	7.0	4.2	0.6	0.3	8.0	25.9	180	5.6	0.51	3.9	98.9	3.2
	1.5	1.5	3.5	240	7.3	5.0	0.7	0.3	8.3	26.1	240	5.8	0.47	4.2	92.3	3.6
	2.0	2.8	6.5	180	7.1	4.2	0.6	0.3	8.0	26.7	180	5.7	0.51	4.1	99.5	3.3
	2.0	2.8	6.5	240	7.4	5.0	0.7	0.3	8.3	26.9	240	5.9	0.47	4.3	92.7	3.7
50	1.0	0.3	0.7	180	6.9	4.4	0.6	0.3	8.0	22.2	180	6.1	0.52	4.4	101.6	3.5
	1.0	0.3	0.7	240	7.2	5.2	0.7	0.3	8.3	22.4	240	6.3	0.48	4.7	94.3	3.9
	1.5	1.4	3.2	180	7.0	4.4	0.6	0.3	8.0	23.9	180	6.4	0.52	4.6	102.7	3.6
	1.5	1.4	3.2	240	7.3	5.2	0.7	0.3	8.4	24.0	240	6.5	0.48	4.9	95.2	4.0
	2.0	2.6	6.0	180	7.1	4.4	0.6	0.3	8.1	24.7	180	6.5	0.52	4.7	103.3	3.6
	2.0	2.6	6.0	240	7.4	5.2	0.7	0.3	8.4	24.9	240	6.7	0.48	5.0	95.7	4.1
60	1.0	0.2	0.5	180	6.7	4.4	0.7	0.4	7.9	19.4	180	6.8	0.53	5.0	105.0	3.8
	1.0	0.2	0.5	240	7.0	5.3	0.8	0.4	8.2	19.6	240	7.0	0.48	5.3	96.9	4.2
	1.5	1.3	3.0	180	6.9	4.5	0.6	0.3	8.0	21.1	180	7.0	0.53	5.3	106.2	3.9
	1.5	1.3	3.0	240	7.2	5.3	0.7	0.3	8.3	21.3	240	7.2	0.48	5.6	97.9	4.4
	2.0	2.4	5.5	180	6.9	4.5	0.6	0.3	8.0	21.9	180	7.2	0.53	5.4	106.9	4.0
	2.0	2.4	5.5	240	7.2	5.3	0.7	0.3	8.3	22.1	240	7.4	0.48	5.7	98.4	4.5
70	1.0	0.2	0.5	180	6.4	4.4	0.7	0.4	7.7	16.5	180	7.4	0.53	5.6	108.3	4.1
	1.0	0.2	0.5	240	6.6	5.2	0.8	0.4	8.0	16.6	240	7.6	0.49	6.0	99.5	4.6
	1.5	1.2	2.8	180	6.6	4.4	0.7	0.4	7.8	18.0	180	7.7	0.53	5.9	109.8	4.2
	1.5	1.2	2.8	240	6.8	5.3	0.8	0.4	8.1	18.2	240	7.9	0.49	6.3	100.6	4.8
	2.0	2.2	5.1	180	6.7	4.4	0.7	0.4	7.9	18.9	180	7.9	0.53	6.1	110.6	4.3
	2.0	2.2	5.1	240	6.9	5.3	0.8	0.4	8.2	19.0	240	8.1	0.49	6.4	101.2	4.9
80	1.0	0.2	0.5	180	5.9	4.2	0.7	0.4	7.4	13.7	180	8.1	0.54	6.3	111.8	4.4
	1.0	0.2	0.5	240	6.2	5.0	0.8	0.5	7.7	13.8	240	8.4	0.49	6.7	102.2	5.0
	1.5	1.1	2.5	180	6.1	4.3	0.7	0.4	7.5	15.1	180	8.5	0.54	6.6	113.7	4.6
	1.5	1.1	2.5	240	6.4	5.1	0.8	0.4	7.8	15.2	240	8.7	0.49	7.0	103.6	5.2
	2.0	2.0	4.6	180	6.3	4.3	0.7	0.4	7.6	15.8	180	8.7	0.54	6.8	114.7	4.7
	2.0	2.0	4.6	240	6.5	5.2	0.8	0.4	7.9	16.0	240	8.9	0.49	7.2	104.4	5.3
85	1.0	0.2	0.5	180	5.7	4.1	0.7	0.5	7.2	12.5	180	8.5	0.54	6.7	113.8	4.6
	1.0	0.2	0.5	240	5.9	4.9	0.8	0.5	7.5	12.6	240	8.7	0.49	7.1	103.8	5.2
	1.5	1.1	2.4	180	5.9	4.2	0.7	0.4	7.4	13.8	180	8.9	0.54	7.0	115.9	4.8
	1.5	1.1	2.4	240	6.2	5.0	0.8	0.5	7.7	13.9	240	9.2	0.49	7.5	105.4	5.4
	2.0	1.9	4.4	180	6.0	4.2	0.7	0.4	7.5	14.5	180	9.2	0.54	7.3	117.2	5.0
	2.0	1.9	4.4	240	6.3	5.1	0.8	0.4	7.8	14.6	240	9.4	0.50	7.7	106.3	5.6
90	1.0	0.2	0.5	180	5.4	4.0	0.7	0.5	7.1	11.3	180	8.9	0.54	7.0	115.8	4.8
	1.0	0.2	0.5	240	5.6	4.8	0.8	0.5	7.3	11.4	240	9.1	0.49	7.5	105.3	5.4
	1.5	1.0	2.3	180	5.7	4.1	0.7	0.5	7.2	12.4	180	9.4	0.54	7.5	118.2	5.1
	1.5	1.0	2.3	240	5.9	4.9	0.8	0.5	7.5	12.5	240	9.6	0.50	7.9	107.1	5.7
	2.0	1.8	4.2	180	5.8	4.2	0.7	0.4	7.3	13.1	180	9.7	0.55	7.7	119.6	5.2
	2.0	1.8	4.2	240	6.0	5.0	0.8	0.5	7.6	13.2	240	9.9	0.50	8.2	108.2	5.8
100	1.0	0.1	0.2	180	4.9	3.7	0.8	0.5	6.7	9.2	Operation not recommended					
	1.0	0.1	0.2	240	5.1	4.5	0.9	0.6	7.0	9.3						
	1.5	0.8	1.8	180	5.2	3.9	0.8	0.5	6.9	10.2						
	1.5	0.8	1.8	240	5.4	4.6	0.9	0.5	7.2	10.2						
	2.0	1.6	3.7	180	5.3	3.9	0.7	0.5	7.0	10.7						
	2.0	1.6	3.7	240	5.5	4.7	0.9	0.5	7.3	10.8						
110	1.0	0.1	0.2	180	4.4	3.5	0.8	0.6	6.4	7.5						
	1.0	0.1	0.2	240	4.6	4.1	0.9	0.6	6.7	7.6						
	1.5	0.7	1.6	180	4.6	3.6	0.8	0.6	6.6	8.2						
	1.5	0.7	1.6	240	4.8	4.3	0.9	0.6	6.8	8.3						
	2.0	1.4	3.2	180	4.8	3.7	0.8	0.6	6.6	8.6						
	2.0	1.4	3.2	240	5.0	4.4	0.9	0.6	6.9	8.7						
120	1.0	0.1	0.2	180	3.9	3.2	0.8	0.7	6.1	6.1						
	1.0	0.1	0.2	240	4.1	3.8	0.9	0.7	6.4	6.1						
	1.5	0.6	1.4	180	4.1	3.3	0.8	0.6	6.3	6.7						
	1.5	0.6	1.4	240	4.3	3.9	0.9	0.6	6.5	6.7						
	2.0	1.2	2.8	180	4.2	3.4	0.8	0.6	6.3	7.0						
	2.0	1.2	2.8	240	4.4	4.0	0.9	0.6	6.6	7.0						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

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Performance Data – TS H/V 009B (PSC Blower)

350 CFM Nominal (Rated) Airflow Cooling, 350 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	2.8	2.8	6.5	Operation not recommended							225	5.7	0.69	3.5	93.3	2.4
	2.8	2.8	6.5								300	5.8	0.63	3.7	88.0	2.7
30	1.4	0.8	1.8	225	11.6	6.5	0.6	0.37	12.9	31.4	225	6.6	0.71	4.3	97.0	2.7
	1.4	0.8	1.8	300	12.1	7.8	0.6	0.38	13.4	31.6	300	6.7	0.65	4.6	90.8	3.0
	2.1	1.5	3.5	225	11.9	6.6	0.6	0.34	13.0	34.9	225	6.9	0.72	4.5	98.2	2.8
	2.1	1.5	3.5	300	12.4	7.9	0.6	0.35	13.5	35.2	300	7.0	0.66	4.8	91.7	3.1
	2.8	2.7	6.2	225	12.0	6.7	0.6	0.32	13.1	36.9	225	7.0	0.72	4.7	98.8	2.8
	2.8	2.7	6.2	300	12.5	8.0	0.6	0.33	13.6	37.2	300	7.2	0.66	5.0	92.2	3.2
40	1.4	0.8	1.7	225	11.3	6.3	0.6	0.42	12.7	26.7	225	7.7	0.74	5.3	101.9	3.1
	1.4	0.8	1.7	300	11.7	7.6	0.6	0.44	13.2	26.9	300	8.0	0.67	5.7	94.5	3.5
	2.1	1.5	3.4	300	12.0	7.7	0.6	0.40	13.3	29.8	300	8.3	0.68	6.0	95.6	3.6
	2.8	2.6	5.9	225	11.6	6.5	0.6	0.37	12.9	31.2	225	8.3	0.75	5.8	104.0	3.2
	2.8	2.6	5.9	300	12.1	7.8	0.6	0.39	13.4	31.5	300	8.5	0.68	6.2	96.2	3.6
50	1.4	0.7	1.6	225	10.8	6.2	0.6	0.48	12.4	22.7	225	8.9	0.76	6.4	106.4	3.4
	1.4	0.7	1.6	300	11.3	7.4	0.7	0.49	12.9	22.9	300	9.1	0.69	6.7	98.0	3.8
	2.1	1.4	3.2	225	11.1	6.3	0.6	0.44	12.6	25.1	225	9.2	0.76	6.7	107.9	3.5
	2.1	1.4	3.2	300	11.6	7.5	0.6	0.46	13.1	25.3	300	9.5	0.70	7.1	99.2	4.0
	2.8	2.4	5.6	225	11.2	6.3	0.6	0.42	12.7	26.5	225	9.4	0.77	6.9	108.8	3.6
	2.8	2.4	5.6	300	11.7	7.6	0.6	0.44	13.2	26.7	300	9.7	0.70	7.3	99.8	4.0
60	1.4	0.7	1.5	225	10.3	6.0	0.6	0.53	12.1	19.3	225	9.9	0.77	7.3	110.7	3.8
	1.4	0.7	1.5	300	10.7	7.2	0.7	0.55	12.6	19.5	300	10.2	0.71	7.8	101.4	4.2
	2.1	1.3	3.0	225	10.6	6.1	0.6	0.50	12.3	21.3	225	10.3	0.78	7.7	112.4	3.9
	2.1	1.3	3.0	300	11.1	7.3	0.7	0.51	12.8	21.5	300	10.6	0.71	8.2	102.7	4.4
	2.8	2.3	5.3	225	10.8	6.1	0.6	0.48	12.4	22.5	225	10.5	0.78	7.9	113.3	3.9
	2.8	2.3	5.3	300	11.2	7.4	0.7	0.5	12.9	22.6	300	10.8	0.71	8.4	103.3	4.4
70	1.4	0.6	1.5	225	9.7	5.8	0.6	0.59	11.8	16.4	225	10.9	0.79	8.2	114.9	4.1
	1.4	0.6	1.5	300	10.1	6.9	0.7	0.61	12.2	16.5	300	11.2	0.72	8.7	104.5	4.6
	2.1	1.2	2.8	225	10.1	5.9	0.6	0.56	12.0	18.1	225	11.3	0.79	8.6	116.7	4.2
	2.1	1.2	2.8	300	10.5	7.1	0.7	0.58	12.5	18.2	300	11.6	0.72	9.2	105.9	4.7
	2.8	2.2	5.0	225	10.3	6.0	0.6	0.54	12.1	19.0	225	11.6	0.80	8.9	117.6	4.3
	2.8	2.2	5.0	300	10.7	7.1	0.7	0.56	12.6	19.2	300	11.9	0.73	9.4	106.7	4.8
80	1.4	0.6	1.4	225	9.1	5.6	0.6	0.66	11.4	13.9	225	11.9	0.80	9.1	118.9	4.3
	1.4	0.6	1.4	300	9.5	6.7	0.7	0.68	11.8	14.0	300	12.2	0.73	9.7	107.6	4.9
	2.1	1.1	2.6	225	9.5	5.7	0.6	0.62	11.6	15.3	225	12.3	0.81	9.6	120.8	4.5
	2.1	1.1	2.6	300	9.9	6.8	0.7	0.64	12.1	15.4	300	12.7	0.74	10.2	109.1	5.0
	2.8	2.0	4.7	225	9.7	5.8	0.6	0.60	11.7	16.1	225	12.6	0.81	9.8	121.9	4.5
	2.8	2.0	4.7	300	10.1	6.9	0.7	0.62	12.2	16.2	300	12.9	0.74	10.4	109.9	5.1
85	1.4	0.6	1.3	225	8.8	5.5	0.6	0.69	11.1	12.8	225	12.3	0.81	9.6	120.8	4.5
	1.4	0.6	1.3	300	9.1	6.6	0.7	0.71	11.6	12.9	300	12.7	0.74	10.2	109.1	5.0
	2.1	1.1	2.5	225	9.2	5.6	0.6	0.65	11.4	14.1	225	12.8	0.82	10.0	122.8	4.6
	2.1	1.1	2.5	300	9.5	6.7	0.7	0.67	11.8	14.2	300	13.2	0.75	10.6	110.7	5.2
	2.8	1.9	4.5	225	9.3	5.7	0.6	0.63	11.5	14.8	225	13.1	0.82	10.3	123.9	4.7
	2.8	1.9	4.5	300	9.7	6.8	0.7	0.65	12.0	14.9	300	13.5	0.75	10.9	111.5	5.2
90	1.4	0.6	1.3	225	8.4	5.4	0.6	0.72	10.9	11.7	225	12.8	0.82	10.0	122.8	4.6
	1.4	0.6	1.3	300	8.8	6.4	0.7	0.75	11.3	11.8	300	13.2	0.75	10.6	110.6	5.2
	2.1	1.1	2.5	225	8.8	5.5	0.6	0.69	11.2	12.9	225	13.3	0.83	10.5	124.9	4.7
	2.1	1.1	2.5	300	9.2	6.6	0.7	0.71	11.6	13	300	13.7	0.76	11.1	112.3	5.3
	2.8	1.9	4.3	225	9.0	5.6	0.6	0.67	11.3	13.5	225	13.6	0.83	10.7	126.0	4.8
	2.8	1.9	4.3	300	9.4	6.7	0.7	0.69	11.7	13.6	300	14.0	0.76	11.4	113.1	5.4
100	1.4	0.5	1.2	225	7.7	5.1	0.7	0.79	10.4	9.7	Operation not recommended					
	1.4	0.5	1.2	300	8.0	6.2	0.8	0.82	10.8	9.8						
	2.1	1.0	2.3	225	8.1	5.3	0.7	0.75	10.7	10.8						
	2.1	1.0	2.3	300	8.4	6.3	0.7	0.78	11.1	10.8						
	2.8	1.7	4.0	225	8.3	5.3	0.6	0.74	10.8	11.3						
	2.8	1.7	4.0	300	8.7	6.4	0.7	0.76	11.2	11.4						
110	1.4	0.5	1.1	225	6.9	4.9	0.7	0.86	9.9	8						
	1.4	0.5	1.1	300	7.2	5.8	0.8	0.89	10.3	8.1						
	2.1	0.9	2.1	225	7.3	5.0	0.7	0.83	10.2	8.9						
	2.1	0.9	2.1	300	7.6	6.0	0.8	0.85	10.6	8.9						
	2.8	1.6	3.7	225	7.5	5.1	0.7	0.81	10.3	9.3						
	2.8	1.6	3.7	300	7.9	6.1	0.8	0.84	10.7	9.4						
120	1.4	0.4	1.0	225	6.1	4.5	0.7	0.94	9.3	6.5						
	1.4	0.4	1.0	300	6.4	5.4	0.9	0.97	9.7	6.6						
	2.1	0.8	1.9	225	6.5	4.7	0.7	0.90	9.6	7.2						
	2.1	0.8	1.9	300	6.8	5.6	0.8	0.93	10.0	7.3						
	2.8	1.5	3.4	225	6.7	4.8	0.7	0.88	9.7	7.6						
	2.8	1.5	3.4	300	7.0	5.7	0.8	0.91	10.1	7.7						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at 1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at **climatemaster.com**.

Performance Data – TS H/V 012A (PSC Blower)

350 CFM Nominal (Rated) Airflow Cooling, 350 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	3.5	4.0	9.2	Operation not recommended							265	7.7	0.89	4.9	97.1	2.5
	3.5	4.0	9.2								350	8.0	0.82	5.2	91.0	2.8
30	1.8	0.6	1.4	265	12.1	6.5	0.5	0.50	13.8	24.4	265	8.9	0.92	5.9	101.0	2.8
	1.8	0.6	1.4	350	12.6	7.8	0.6	0.51	14.4	24.6	350	9.1	0.85	6.3	94.1	3.2
	2.6	2.1	4.8	265	12.3	6.6	0.5	0.48	13.9	25.9	265	9.3	0.94	6.2	102.4	2.9
	2.6	2.1	4.8	350	12.8	7.9	0.6	0.49	14.5	26.1	350	9.5	0.86	6.6	95.1	3.3
	3.5	3.8	8.8	265	12.7	6.8	0.5	0.47	14.3	27.3	265	9.5	0.94	6.4	103.1	2.9
	3.5	3.8	8.8	350	13.3	8.1	0.6	0.48	14.9	27.5	350	9.7	0.86	6.8	95.7	3.3
40	1.8	0.6	1.3	265	12.7	6.9	0.5	0.55	14.6	23.3	265	10.3	0.97	7.2	106.0	3.1
	1.8	0.6	1.3	350	13.2	8.2	0.6	0.56	15.2	23.5	350	10.6	0.88	7.6	98.0	3.5
	2.6	2.0	4.6	265	12.8	6.9	0.5	0.52	14.6	24.8	265	10.7	0.98	7.5	107.4	3.2
	2.6	2.0	4.6	350	13.3	8.3	0.6	0.53	15.2	25.0	350	11.0	0.89	8.0	99.1	3.6
	3.5	3.6	8.3	265	12.9	6.9	0.5	0.50	14.6	25.6	265	10.9	0.98	7.7	108.1	3.2
	3.5	3.6	8.3	350	13.5	8.3	0.6	0.52	15.2	25.8	350	11.2	0.90	8.1	99.6	3.6
50	1.8	0.5	1.1	265	12.7	6.9	0.5	0.61	14.8	21.0	265	11.5	1.00	8.2	110.2	3.4
	1.8	0.5	1.1	350	13.2	8.3	0.6	0.63	15.4	21.2	350	11.8	0.92	8.7	101.2	3.8
	2.6	1.9	4.3	265	12.9	7.0	0.5	0.57	14.8	22.6	265	11.9	1.01	8.5	111.5	3.4
	2.6	1.9	4.3	350	13.4	8.3	0.6	0.59	15.4	22.7	350	12.2	0.93	9.0	102.2	3.9
	3.5	3.4	7.9	265	12.9	7.0	0.5	0.55	14.8	23.4	265	12.0	1.02	8.7	112.1	3.5
	3.5	3.4	7.9	350	13.5	8.4	0.6	0.57	15.4	23.5	350	12.4	0.93	9.2	102.7	3.9
60	1.8	0.4	1.0	265	12.5	6.9	0.5	0.67	14.8	18.6	265	12.5	1.03	9.0	113.6	3.5
	1.8	0.4	1.0	350	13.0	8.2	0.6	0.69	15.4	18.8	350	12.8	0.94	9.6	103.9	4.0
	2.6	1.8	4.1	265	12.7	6.9	0.5	0.63	14.9	20.2	265	12.8	1.04	9.3	114.6	3.6
	2.6	1.8	4.1	350	13.3	8.3	0.6	0.65	15.5	20.3	350	13.1	0.95	9.9	104.7	4.0
	3.5	3.2	7.4	265	12.8	7.0	0.5	0.61	14.9	20.9	265	12.9	1.05	9.4	115.1	3.6
	3.5	3.2	7.4	350	13.4	8.4	0.6	0.63	15.5	21.1	350	13.3	0.96	10.0	105.1	4.1
70	1.8	0.4	0.9	265	12.0	6.7	0.6	0.75	14.5	16.1	265	13.2	1.06	9.7	116.1	3.7
	1.8	0.4	0.9	350	12.5	8.0	0.6	0.77	15.1	16.2	350	13.5	0.97	10.3	105.8	4.1
	2.6	1.6	3.8	265	12.3	6.8	0.6	0.70	14.7	17.5	265	13.4	1.06	9.9	116.9	3.7
	2.6	1.6	3.8	350	12.8	8.1	0.6	0.73	15.3	17.7	350	13.8	0.97	10.5	106.4	4.1
	3.5	3.0	6.9	265	12.5	6.9	0.5	0.68	14.8	18.3	265	13.5	1.07	9.9	117.2	3.7
	3.5	3.0	6.9	350	13.0	8.2	0.6	0.70	15.4	18.4	350	13.9	0.98	10.6	106.7	4.2
80	1.8	0.3	0.7	265	11.3	6.5	0.6	0.83	14.1	13.6	265	13.7	1.07	10.1	117.8	3.7
	1.8	0.3	0.7	350	11.7	7.8	0.7	0.85	14.7	13.7	350	14.0	0.98	10.7	107.1	4.2
	2.6	1.5	3.5	265	11.7	6.6	0.6	0.78	14.3	15.0	265	13.8	1.08	10.2	118.2	3.8
	2.6	1.5	3.5	350	12.2	7.9	0.6	0.81	14.9	15.1	350	14.2	0.98	10.8	107.4	4.2
	3.5	2.8	6.5	265	11.9	6.7	0.6	0.76	14.5	15.7	265	13.8	1.08	10.2	118.3	3.8
	3.5	2.8	6.5	350	12.4	8.0	0.6	0.78	15.0	15.8	350	14.2	0.98	10.9	107.6	4.2
85	1.8	0.3	0.7	265	10.9	6.4	0.6	0.87	13.8	12.5	265	13.8	1.08	10.2	118.1	3.8
	1.8	0.3	0.7	350	11.3	7.6	0.7	0.90	14.4	12.6	350	14.1	0.98	10.8	107.4	4.2
	2.6	1.5	3.4	265	11.3	6.5	0.6	0.82	14.1	13.8	265	13.8	1.08	10.2	118.4	3.8
	2.6	1.5	3.4	350	11.8	7.8	0.7	0.85	14.7	13.9	350	14.2	0.98	10.9	107.6	4.2
	3.5	2.7	6.3	265	11.5	6.5	0.6	0.80	14.2	14.5	265	13.9	1.08	10.3	118.5	3.8
	3.5	2.7	6.3	350	12.0	7.8	0.7	0.83	14.8	14.6	350	14.2	0.98	10.9	107.7	4.2
90	1.8	0.3	0.6	265	10.4	6.2	0.6	0.91	13.5	11.4	265	13.9	1.08	10.3	118.5	3.8
	1.8	0.3	0.6	350	10.9	7.5	0.7	0.94	14.1	11.5	350	14.3	0.99	10.9	107.7	4.2
	2.6	1.4	3.3	265	10.9	6.4	0.6	0.87	13.9	12.6	265	13.9	1.08	10.3	118.6	3.8
	2.6	1.4	3.3	350	11.4	7.6	0.7	0.89	14.4	12.7	350	14.3	0.98	10.9	107.7	4.3
	3.5	2.6	6.0	265	11.1	6.4	0.6	0.84	14.0	13.2	265	13.9	1.07	10.3	118.6	3.8
	3.5	2.6	6.0	350	11.6	7.7	0.7	0.87	14.6	13.3	350	14.3	0.98	10.9	107.8	4.3
100	1.8	0.2	0.5	265	9.5	6.0	0.6	1.00	12.9	9.5	Operation not recommended					
	1.8	0.2	0.5	350	9.9	7.2	0.7	1.04	13.4	9.5						
	2.6	1.3	3.0	265	10.0	6.1	0.6	0.96	13.3	10.5						
	2.6	1.3	3.0	350	10.4	7.3	0.7	0.99	13.8	10.5						
	3.5	2.4	5.6	265	10.2	6.2	0.6	0.93	13.4	11.0						
	3.5	2.4	5.6	350	10.7	7.4	0.7	0.96	14.0	11.1						
110	1.8	0.1	0.3	265	8.5	5.7	0.7	1.10	12.3	7.7						
	1.8	0.1	0.3	350	8.9	6.9	0.8	1.14	12.8	7.8						
	2.6	1.2	2.7	265	9.0	5.9	0.7	1.05	12.6	8.6						
	2.6	1.2	2.7	350	9.4	7.0	0.7	1.09	13.1	8.6						
	3.5	2.2	5.1	265	9.3	5.9	0.6	1.03	12.8	9.0						
	3.5	2.2	5.1	350	9.6	7.1	0.7	1.06	13.3	9.1						
120	1.8	0.1	0.2	265	7.5	5.5	0.7	1.20	11.6	6.2						
	1.8	0.1	0.2	350	7.8	6.6	0.8	1.24	12.0	6.3						
	2.6	1.1	2.5	265	8.0	5.6	0.7	1.15	11.9	6.9						
	2.6	1.1	2.5	350	8.3	6.7	0.8	1.19	12.4	7.0						
	3.5	2.0	4.6	265	8.2	5.7	0.7	1.13	12.1	7.3						
	3.5	2.0	4.6	350	8.6	6.8	0.8	1.16	12.5	7.3						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

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Performance Data – TS H/V/D 018B (PSC Blower)

600 CFM Nominal (Rated) Airflow Cooling, 600 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	5.5	3.9	9.0	Operation not recommended							450	12.2	1.36	7.8	95.0	2.6
	5.5	3.9	9.0								600	12.5	1.24	8.3	89.3	2.9
30	2.8	0.7	1.6	450	20.7	16.8	0.81	0.78	23.3	26.6	450	13.7	1.40	9.2	98.1	2.9
	2.8	0.7	1.6	600	21.5	14.0	0.65	0.80	24.3	26.8	600	14.0	1.28	9.7	91.7	3.2
	4.1	2.1	4.9	450	21.0	16.8	0.80	0.74	23.5	28.4	450	14.2	1.41	9.6	99.3	2.9
	4.1	2.1	4.9	600	21.8	14.1	0.64	0.76	24.4	28.6	600	14.6	1.29	10.2	92.5	3.3
	5.5	3.5	8.1	450	21.2	16.8	0.80	0.72	23.6	29.3	450	14.5	1.42	9.9	99.9	3.0
	5.5	3.5	8.1	600	22.0	14.1	0.64	0.75	24.6	29.6	600	14.9	1.30	10.5	93.0	3.4
40	2.8	0.6	1.4	450	20.8	17.2	0.83	0.85	23.7	24.5	450	15.8	1.44	11.1	102.6	3.2
	2.8	0.6	1.4	600	21.7	14.4	0.66	0.88	24.6	24.7	600	16.3	1.32	11.8	95.1	3.6
	4.1	2.0	4.6	450	21.0	17.2	0.82	0.81	23.7	26.0	450	16.5	1.45	11.7	103.9	3.3
	4.1	2.0	4.6	600	21.8	14.4	0.66	0.83	24.7	26.2	600	16.9	1.33	12.4	96.1	3.7
	5.5	3.2	7.4	450	21.2	17.3	0.82	0.79	23.9	26.9	450	16.8	1.46	12.0	104.7	3.4
	5.5	3.2	7.4	600	22.1	14.5	0.66	0.81	24.8	27.1	600	17.3	1.33	12.8	96.7	3.8
50	2.8	0.5	1.2	450	20.6	17.3	0.84	0.95	23.9	21.8	450	18.0	1.47	13.1	107.0	3.6
	2.8	0.5	1.2	600	21.5	14.5	0.67	0.98	24.8	22.0	600	18.5	1.35	13.9	98.5	4.0
	4.1	1.7	3.9	450	21.0	17.5	0.83	0.89	24.0	23.5	450	18.7	1.48	13.8	108.6	3.7
	4.1	1.7	3.9	600	21.8	14.6	0.67	0.92	25.0	23.7	600	19.2	1.35	14.6	99.7	4.2
	5.5	2.8	6.5	450	21.1	17.5	0.83	0.86	24.0	24.4	450	19.2	1.49	14.2	109.4	3.8
	5.5	2.8	6.5	600	21.9	14.6	0.67	0.89	25.0	24.6	600	19.7	1.36	15.1	100.4	4.2
60	2.8	0.3	0.7	450	19.9	16.8	0.85	1.05	23.5	18.9	450	20.1	1.50	15.1	111.4	3.9
	2.8	0.3	0.7	600	20.7	14.1	0.68	1.09	24.4	19.1	600	20.7	1.37	16.0	101.9	4.4
	4.1	1.5	3.5	450	20.4	17.2	0.84	0.99	23.7	20.6	450	21.0	1.51	15.9	113.3	4.1
	4.1	1.5	3.5	600	21.2	14.3	0.68	1.02	24.7	20.8	600	21.6	1.38	16.9	103.3	4.6
	5.5	2.6	6.0	450	20.6	17.3	0.84	0.96	23.8	21.5	450	21.5	1.52	16.4	114.3	4.1
	5.5	2.6	6.0	600	21.4	14.4	0.67	0.99	24.8	21.7	600	22.1	1.39	17.4	104.1	4.7
70	2.8	0.3	0.7	450	18.9	16.2	0.86	1.17	22.9	16.1	450	22.3	1.54	17.1	115.9	4.3
	2.8	0.3	0.7	600	19.7	13.5	0.69	1.21	23.8	16.2	600	22.9	1.40	18.1	105.4	4.8
	4.1	1.4	3.2	450	19.5	16.6	0.85	1.10	23.2	17.7	450	23.4	1.56	18.0	118.1	4.4
	4.1	1.4	3.2	600	20.3	13.8	0.68	1.14	24.2	17.9	600	24.0	1.43	19.1	107.0	4.9
	5.5	2.4	5.5	450	19.8	16.8	0.85	1.07	23.4	18.6	450	23.9	1.57	18.5	119.3	4.5
	5.5	2.4	5.5	600	20.6	14.0	0.68	1.10	24.3	18.7	600	24.6	1.44	19.7	107.9	5.0
80	2.8	0.2	0.5	450	17.7	15.4	0.87	1.31	22.2	13.6	450	24.6	1.59	19.1	120.6	4.5
	2.8	0.2	0.5	600	18.5	12.9	0.70	1.35	23.1	13.7	600	25.2	1.46	20.3	108.9	5.1
	4.1	1.2	2.8	450	18.4	15.9	0.86	1.23	22.6	15.0	450	25.8	1.63	20.2	123.1	4.6
	4.1	1.2	2.8	600	19.2	13.2	0.69	1.27	23.5	15.1	600	26.5	1.49	21.4	110.9	5.2
	5.5	2.2	5.1	450	18.7	16.1	0.86	1.19	22.8	15.7	450	26.5	1.66	20.7	124.5	4.7
	5.5	2.2	5.1	600	19.5	13.4	0.69	1.23	23.7	15.9	600	27.2	1.52	22.0	111.9	5.3
85	2.8	0.2	0.5	450	17.1	15.0	0.88	1.39	21.9	12.4	450	25.8	1.63	20.1	123.0	4.6
	2.8	0.2	0.5	600	17.8	12.6	0.70	1.43	22.7	12.5	600	26.4	1.49	21.3	110.8	5.2
	4.1	1.2	2.7	450	17.8	15.5	0.87	1.30	22.2	13.7	450	27.1	1.69	21.2	125.7	4.7
	4.1	1.2	2.7	600	18.5	12.9	0.70	1.35	23.1	13.8	600	27.8	1.54	22.5	112.9	5.3
	5.5	2.1	4.9	450	18.1	15.7	0.86	1.26	22.4	14.4	450	27.8	1.72	21.8	127.2	4.7
	5.5	2.1	4.9	600	18.9	13.1	0.69	1.30	23.3	14.6	600	28.6	1.58	23.2	114.1	5.3
90	2.8	0.2	0.5	450	16.5	14.7	0.89	1.46	21.5	11.3	450	26.9	1.68	21.1	125.4	4.7
	2.8	0.2	0.5	600	17.2	12.3	0.71	1.51	22.4	11.4	600	27.7	1.53	22.4	112.7	5.3
	4.1	1.1	2.5	450	17.2	15.1	0.88	1.38	21.9	12.5	450	28.4	1.74	22.3	128.3	4.8
	4.1	1.1	2.5	600	17.9	12.6	0.70	1.42	22.8	12.6	600	29.1	1.60	23.6	114.9	5.3
	5.5	2.0	4.6	450	17.5	15.3	0.87	1.33	22.1	13.1	450	29.1	1.79	22.9	130.0	4.8
	5.5	2.0	4.6	600	18.3	12.8	0.70	1.38	23.0	13.2	600	29.9	1.63	24.3	116.2	5.4
100	2.8	0.2	0.5	450	15.2	14.0	0.92	1.64	20.8	9.3	Operation not recommended					
	2.8	0.2	0.5	600	15.9	11.7	0.74	1.69	21.7	9.4						
	4.1	1.1	2.5	450	15.9	14.3	0.90	1.54	21.2	10.3						
	4.1	1.1	2.5	600	16.6	12.0	0.72	1.59	22.0	10.4						
	5.5	1.9	4.4	450	16.3	14.5	0.89	1.50	21.4	10.9						
	5.5	1.9	4.4	600	16.9	12.1	0.72	1.55	22.2	10.9						
110	2.8	0.1	0.2	450	14.0	13.4	0.96	1.84	20.3	7.6						
	2.8	0.1	0.2	600	14.6	11.2	0.77	1.90	21.1	7.7						
	4.1	0.9	2.1	450	14.6	13.7	0.94	1.73	20.5	8.4						
	4.1	0.9	2.1	600	15.2	11.4	0.75	1.79	21.4	8.5						
	5.5	1.7	3.9	450	15.0	13.8	0.93	1.68	20.7	8.9						
	5.5	1.7	3.9	600	15.6	11.6	0.74	1.74	21.5	9.0						
120	2.8	0.1	0.2	450	12.9	13.1	1.02	2.06	19.9	6.2						
	2.8	0.1	0.2	600	13.4	10.9	0.82	2.13	20.7	6.3						
	4.1	0.8	1.8	450	13.4	13.2	0.99	1.94	20.1	6.9						
	4.1	0.8	1.8	600	14.0	11.0	0.79	2.01	20.8	7.0						
	5.5	1.6	3.7	450	13.7	13.3	0.97	1.89	20.2	7.3						
	5.5	1.6	3.7	600	14.3	11.1	0.78	1.95	21.0	7.3						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at 1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at **climatemaster.com**.

Performance Data – TS H/V/D 018B (ECM Blower)

750 CFM Nominal (Rated) Airflow Cooling, 750 CFM Nominal (Rated) Airflow Heating — Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	5.5	3.9	9.0	Operation not recommended							550	11.9	1.25	7.9	90.0	2.8
	5.5	3.9	9.0								750	12.3	1.16	8.4	85.1	3.1
30	2.8	0.7	1.6	550	20.3	12.4	0.61	0.75	22.8	27.3	550	13.2	1.29	9.0	92.3	3.0
	2.8	0.7	1.6	750	21.1	14.5	0.68	0.79	23.8	26.8	750	13.6	1.20	9.6	86.8	3.3
	4.1	2.1	4.9	550	20.7	12.6	0.61	0.71	23.1	29.1	550	13.7	1.31	9.5	93.1	3.1
	4.1	2.1	4.9	750	21.5	14.7	0.68	0.75	24.1	28.6	750	14.1	1.21	10.1	87.5	3.4
	5.5	3.5	8.1	550	21.3	12.9	0.61	0.70	23.6	30.5	550	14.0	1.31	9.7	93.6	3.1
	5.5	3.5	8.1	750	22.1	15.0	0.68	0.74	24.6	30.0	750	14.4	1.21	10.3	87.8	3.5
40	2.8	0.6	1.4	550	20.8	12.9	0.62	0.81	23.5	25.5	550	15.3	1.33	10.9	95.8	3.4
	2.8	0.6	1.4	750	21.6	15.0	0.70	0.86	24.5	25.1	750	15.8	1.23	11.6	89.5	3.8
	4.1	2	4.6	550	21.3	13.1	0.61	0.77	23.9	27.6	550	16.0	1.34	11.5	96.9	3.5
	4.1	2	4.6	750	22.1	15.2	0.69	0.81	24.9	27.2	750	16.5	1.24	12.3	90.3	3.9
	5.5	3.2	7.4	550	21.5	13.2	0.61	0.75	24.0	28.6	550	16.3	1.34	11.9	97.5	3.6
	5.5	3.2	7.4	750	22.4	15.3	0.69	0.79	25.1	28.1	750	16.8	1.24	12.6	90.8	4.0
50	2.8	0.5	1.2	550	21.3	13.5	0.63	0.90	24.3	23.7	550	17.5	1.35	13.0	99.5	3.8
	2.8	0.5	1.2	750	22.1	15.7	0.71	0.95	25.3	23.3	750	18.1	1.25	13.8	92.3	4.2
	4.1	1.7	3.9	550	21.5	13.5	0.63	0.84	24.3	25.5	550	18.4	1.36	13.8	100.9	4.0
	4.1	1.7	3.9	750	22.3	15.7	0.70	0.89	25.4	25.1	750	18.9	1.26	14.6	93.4	4.4
	5.5	2.8	6.5	550	21.6	13.5	0.62	0.82	24.4	26.4	550	18.8	1.36	14.2	101.7	4.0
	5.5	2.8	6.5	750	22.5	15.7	0.70	0.87	25.4	26.0	750	19.4	1.26	15.1	93.9	4.5
60	2.8	0.3	0.7	550	20.6	13.6	0.66	0.99	24.0	20.8	550	19.8	1.37	15.2	103.4	4.2
	2.8	0.3	0.7	750	21.5	15.8	0.74	1.05	25.0	20.4	750	20.4	1.27	16.1	95.2	4.7
	4.1	1.5	3.5	550	21.1	13.6	0.65	0.93	24.3	22.7	550	20.8	1.38	16.1	105.0	4.4
	4.1	1.5	3.5	750	22.0	15.9	0.72	0.99	25.3	22.3	750	21.4	1.28	17.1	96.5	4.9
	5.5	2.6	6.0	550	21.3	13.6	0.64	0.90	24.4	23.6	550	21.3	1.39	16.6	105.9	4.5
	5.5	2.6	6.0	750	22.2	15.9	0.72	0.96	25.4	23.2	750	22.0	1.28	17.6	97.1	5.0
70	2.8	0.3	0.7	550	19.6	13.4	0.68	1.11	23.4	17.7	550	22.1	1.40	17.3	107.2	4.6
	2.8	0.3	0.7	750	20.4	15.6	0.76	1.17	24.4	17.4	750	22.8	1.29	18.4	98.2	5.2
	4.1	1.4	3.2	550	20.3	13.5	0.67	1.04	23.8	19.5	550	23.2	1.42	18.3	109.0	4.8
	4.1	1.4	3.2	750	21.1	15.7	0.75	1.10	24.8	19.2	750	23.9	1.31	19.4	99.5	5.3
	5.5	2.4	5.5	550	20.6	13.6	0.66	1.00	24.0	20.5	550	23.8	1.43	18.8	110.0	4.9
	5.5	2.4	5.5	750	21.4	15.8	0.74	1.06	25.0	20.1	750	24.5	1.32	20.0	100.2	5.4
80	2.8	0.2	0.5	550	18.4	13.1	0.71	1.24	22.7	14.8	550	24.3	1.45	19.3	111.0	4.9
	2.8	0.2	0.5	750	19.2	15.2	0.79	1.31	23.6	14.6	750	25.1	1.34	20.5	101.0	5.5
	4.1	1.2	2.8	550	19.1	13.3	0.69	1.16	23.1	16.5	550	25.5	1.49	20.3	112.9	5.0
	4.1	1.2	2.8	750	19.9	15.4	0.78	1.23	24.1	16.2	750	26.3	1.38	21.5	102.4	5.6
	5.5	2.2	5.1	550	19.5	13.4	0.69	1.12	23.3	17.3	550	26.0	1.52	20.7	113.8	5.0
	5.5	2.2	5.1	750	20.3	15.5	0.77	1.19	24.3	17.0	750	26.8	1.40	22.0	103.1	5.6
85	2.8	0.2	0.5	550	17.8	12.9	0.72	1.32	22.3	13.5	550	25.4	1.49	20.2	112.7	5.0
	2.8	0.2	0.5	750	18.5	15.0	0.81	1.40	23.3	13.3	750	26.2	1.38	21.4	102.3	5.6
	4.1	1.15	2.7	550	18.5	13.1	0.71	1.24	22.7	15.1	550	26.5	1.55	21.1	114.6	5.0
	4.1	1.15	2.7	750	19.2	15.2	0.79	1.31	23.7	14.8	750	27.3	1.43	22.4	103.7	5.6
	5.5	2.1	4.9	550	18.9	13.2	0.70	1.20	22.9	15.9	550	27.0	1.59	21.5	115.5	5.0
	5.5	2.1	4.9	750	19.6	15.3	0.78	1.26	23.9	15.6	750	27.9	1.47	22.8	104.4	5.6
90	2.8	0.2	0.5	550	17.2	12.7	0.74	1.40	21.9	12.3	550	26.4	1.54	21.0	114.5	5.0
	2.8	0.2	0.5	750	17.8	14.8	0.83	1.48	22.9	12.1	750	27.2	1.42	22.4	103.6	5.6
	4.1	1.1	2.5	550	17.9	12.9	0.72	1.31	22.3	13.7	550	27.5	1.61	21.9	116.3	5.0
	4.1	1.1	2.5	750	18.6	15.0	0.81	1.38	23.3	13.4	750	28.4	1.49	23.2	105.0	5.6
	5.5	2	4.6	550	18.2	13.0	0.71	1.27	22.6	14.4	550	28.0	1.66	22.3	117.2	5.0
	5.5	2	4.6	750	19.0	15.2	0.80	1.34	23.5	14.2	750	28.9	1.53	23.6	105.7	5.5
100	2.8	0.2	0.5	550	15.9	12.3	0.77	1.58	21.3	10.1	Operation not recommended					
	2.8	0.2	0.5	750	16.5	14.3	0.87	1.67	22.2	9.9						
	4.1	1.1	2.5	550	16.6	12.5	0.76	1.48	21.6	11.2						
	4.1	1.1	2.5	750	17.2	14.6	0.85	1.56	22.6	11.0						
	5.5	1.9	4.4	550	16.9	12.6	0.75	1.43	21.8	11.8						
	5.5	1.9	4.4	750	17.6	14.7	0.84	1.51	22.8	11.6						
110	2.8	0.1	0.2	550	14.7	12.0	0.81	1.79	20.9	8.3						
	2.8	0.1	0.2	750	15.3	13.9	0.91	1.89	21.8	8.1						
	4.1	0.9	2.1	550	15.3	12.1	0.79	1.67	21.1	9.2						
	4.1	0.9	2.1	750	15.9	14.1	0.89	1.77	22.0	9.0						
	5.5	1.7	3.9	550	15.6	12.2	0.78	1.62	21.2	9.7						
	5.5	1.7	3.9	750	16.3	14.2	0.88	1.71	22.1	9.5						
120	2.8	0.1	0.2	550	13.8	11.5	0.83	2.03	20.8	6.8						
	2.8	0.1	0.2	750	14.4	13.4	0.93	2.14	21.7	6.7						
	4.1	0.8	1.8	550	14.3	11.8	0.83	1.90	20.8	7.5						
	4.1	0.8	1.8	750	14.8	13.7	0.92	2.01	21.7	7.4						
	5.5	1.6	3.7	550	14.5	11.9	0.82	1.83	20.8	7.9						
	5.5	1.6	3.7	750	15.1	13.9	0.92	1.94	21.7	7.8						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

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Performance Data – TS H/V/D 024 (PSC Blower)

850 CFM Nominal (Rated) Airflow Cooling, 850 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	8.0	5.6	12.9	Operation not recommended							640	16.3	1.80	10.6	94	2.66
	8.0	5.6	12.9								850	16.8	1.65	11.2	88	2.99
30	4.0	1.5	3.5	640	27.9	15.6	0.56	0.94	31.1	29.8	640	18.5	1.83	12.5	97	2.95
	4.0	1.5	3.5	850	29.1	18.7	0.64	0.97	32.4	30.0	850	19.0	1.68	13.3	91	3.32
	6.0	3.1	7.2	640	28.0	15.6	0.56	0.90	31.1	31.1	640	19.2	1.84	13.2	98	3.05
	6.0	3.1	7.2	850	29.2	18.7	0.64	0.93	32.4	31.3	850	19.7	1.68	14.0	91	3.42
	8.0	5.1	11.8	640	28.1	15.7	0.56	0.88	31.1	31.8	640	19.5	1.85	13.5	98	3.10
	8.0	5.1	11.8	850	29.3	18.8	0.64	0.91	32.4	32.1	850	20.0	1.69	14.3	92	3.48
40	4.0	1.3	3.0	640	27.8	15.8	0.57	1.04	31.3	26.9	640	21.4	1.87	15.2	101	3.34
	4.0	1.3	3.0	850	29.0	18.9	0.65	1.07	32.6	27.1	850	22.0	1.71	16.1	94	3.75
	6.0	2.8	6.5	640	28.0	15.8	0.56	0.99	31.4	28.5	640	22.2	1.89	16.0	102	3.45
	6.0	2.8	6.5	850	29.2	18.9	0.65	1.02	32.6	28.7	850	22.8	1.72	17.0	95	3.87
	8.0	4.5	10.4	640	28.2	15.8	0.56	0.96	31.4	29.3	640	22.6	1.89	16.4	103	3.51
	8.0	4.5	10.4	850	29.3	18.9	0.65	0.99	32.7	29.5	850	23.3	1.73	17.4	95	3.94
50	4.0	1.3	3.0	640	27.6	15.9	0.58	1.15	31.5	24.1	640	24.2	1.92	17.8	105	3.71
	4.0	1.3	3.0	850	28.7	19.0	0.66	1.18	32.7	24.3	850	24.9	1.75	18.9	97	4.16
	6.0	2.6	6.0	640	27.8	15.9	0.57	1.08	31.5	25.7	640	25.2	1.93	18.7	106	3.82
	6.0	2.6	6.0	850	29.0	19.1	0.66	1.12	32.8	25.9	850	25.9	1.76	19.9	98	4.29
	8.0	4.3	9.9	640	27.9	15.9	0.57	1.06	31.5	26.5	640	25.7	1.94	19.2	107	3.89
	8.0	4.3	9.9	850	29.1	19.1	0.66	1.09	32.8	26.7	850	26.4	1.77	20.3	99	4.36
60	4.0	1.2	2.8	640	26.9	15.9	0.59	1.27	31.2	21.1	640	27.0	1.96	20.4	109	4.05
	4.0	1.2	2.8	850	28.0	19.1	0.68	1.32	32.5	21.3	850	27.7	1.79	21.7	100	4.54
	6.0	2.5	5.8	640	27.3	15.9	0.58	1.20	31.4	22.7	640	28.1	1.97	21.4	111	4.17
	6.0	2.5	5.8	850	28.4	19.1	0.67	1.24	32.6	22.9	850	28.8	1.80	22.7	101	4.68
	8.0	4.0	9.2	640	27.5	15.9	0.58	1.17	31.4	23.5	640	28.6	1.98	21.9	111	4.23
	8.0	4.0	9.2	850	28.6	19.1	0.67	1.21	32.7	23.7	850	29.4	1.81	23.2	102	4.75
70	4.0	1.1	2.5	640	26.0	15.8	0.61	1.42	30.8	18.2	640	29.7	2.00	22.9	113	4.36
	4.0	1.1	2.5	850	27.0	18.9	0.70	1.47	32.0	18.4	850	30.5	1.83	24.3	103	4.89
	6.0	2.3	5.3	640	26.5	15.9	0.60	1.34	31.1	19.8	640	30.8	2.02	23.9	115	4.48
	6.0	2.3	5.3	850	27.6	19.0	0.69	1.39	32.3	19.9	850	31.7	1.84	25.4	104	5.04
	8.0	3.8	8.8	640	26.7	15.9	0.60	1.30	31.2	20.5	640	31.4	2.02	24.5	115	4.55
	8.0	3.8	8.8	850	27.8	19.0	0.68	1.35	32.4	20.7	850	32.3	1.85	25.9	105	5.11
80	4.0	1.0	2.3	640	24.8	15.6	0.63	1.59	30.2	15.6	640	32.3	2.04	25.3	117	4.65
	4.0	1.0	2.3	850	25.8	18.6	0.72	1.65	31.5	15.7	850	33.2	1.86	26.8	106	5.22
	6.0	2.2	5.1	640	25.4	15.7	0.62	1.50	30.6	16.9	640	33.5	2.06	26.3	118	4.77
	6.0	2.2	5.1	850	26.5	18.8	0.71	1.55	31.8	17.1	850	34.4	1.88	27.9	107	5.36
	8.0	3.5	8.1	640	25.7	15.8	0.61	1.46	30.7	17.7	640	34.1	2.07	26.9	119	4.83
	8.0	3.5	8.1	850	26.8	18.9	0.70	1.51	31.9	17.8	850	35.0	1.89	28.5	108	5.43
85	4.0	1.0	2.3	640	24.1	15.4	0.64	1.69	29.9	14.3	640	33.5	2.06	26.4	119	4.78
	4.0	1.0	2.3	850	25.1	18.4	0.73	1.75	31.1	14.4	850	34.4	1.88	28.0	108	5.36
	6.0	2.2	5.0	640	24.8	15.5	0.63	1.59	30.2	15.6	640	34.7	2.08	27.5	120	4.90
	6.0	2.2	5.0	850	25.8	18.6	0.72	1.65	31.5	15.7	850	35.7	1.90	29.2	109	5.50
	8.0	3.5	8.0	640	25.1	15.6	0.62	1.55	30.4	16.2	640	35.4	2.09	28.0	121	4.96
	8.0	3.5	8.0	850	26.2	18.7	0.71	1.60	31.6	16.4	850	36.3	1.91	29.8	110	5.57
90	4.0	1.0	2.3	640	23.5	15.2	0.65	1.79	29.6	13.1	640	34.8	2.08	27.5	120	4.90
	4.0	1.0	2.3	850	24.4	18.2	0.74	1.85	30.8	13.2	850	35.7	1.90	29.2	109	5.51
	6.0	2.1	4.9	640	24.2	15.4	0.64	1.69	29.9	14.3	640	36.0	2.10	28.6	122	5.03
	6.0	2.1	4.9	850	25.2	18.4	0.73	1.74	31.1	14.4	850	37.0	1.92	30.4	110	5.64
	8.0	3.4	7.9	640	24.5	15.5	0.63	1.64	30.1	15.0	640	36.6	2.11	29.2	123	5.09
	8.0	3.4	7.9	850	25.5	18.5	0.73	1.69	31.3	15.1	850	37.6	1.93	31.0	111	5.71
100	4.0	1.0	2.3	640	21.9	14.7	0.67	2.02	28.8	10.9	Operation not recommended					
	4.0	1.0	2.3	850	22.8	17.6	0.77	2.08	30.0	11.0						
	6.0	2.0	4.6	640	22.7	14.9	0.66	1.90	29.2	12.0						
	6.0	2.0	4.6	850	23.7	17.9	0.76	1.96	30.4	12.0						
	8.0	3.2	7.4	640	23.1	15.1	0.65	1.84	29.4	12.5						
	8.0	3.2	7.4	850	24.1	18.1	0.75	1.91	30.6	12.6						
110	4.0	0.9	2.1	640	20.2	14.0	0.69	2.27	28.0	8.9						
	4.0	0.9	2.1	850	21.1	16.8	0.80	2.34	29.1	9.0						
	6.0	1.9	4.4	640	21.1	14.4	0.68	2.14	28.4	9.8						
	6.0	1.9	4.4	850	22.0	17.2	0.78	2.21	29.5	9.9						
	8.0	3.1	7.2	640	21.5	14.5	0.67	2.08	28.6	10.3						
	8.0	3.1	7.2	850	22.4	17.4	0.78	2.15	29.7	10.4						
120	4.0	0.9	2.1	640	18.4	13.2	0.72	2.55	27.1	7.2						
	4.0	0.9	2.1	850	19.2	15.8	0.82	2.64	28.2	7.3						
	6.0	1.8	4.2	640	19.3	13.6	0.70	2.41	27.5	8.0						
	6.0	1.8	4.2	850	20.1	16.3	0.81	2.49	28.6	8.1						
	8.0	3.0	6.9	640	19.7	13.8	0.70	2.35	27.8	8.4						
	8.0	3.0	6.9	850	20.6	16.5	0.80	2.42	28.9	8.5						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at 1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at **climatemaster.com**.

Performance Data – TS H/V/D 024 (ECM Blower)

850 CFM Nominal (Rated) Airflow Cooling, 950 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	8.0	5.6	12.9	Operation not recommended							690	16.0	1.70	10.6	92	2.76
	8.0	5.6	12.9								950	16.5	1.57	11.2	86	3.08
30	4.0	1.5	3.5	610	28.1	16.1	0.57	0.78	30.6	35.9	690	18.1	1.73	12.5	94	3.07
	4.0	1.5	3.5	850	29.2	18.7	0.64	0.83	31.9	35.3	950	18.7	1.60	13.3	88	3.43
	6.0	3.1	7.2	610	28.1	16.1	0.57	0.76	30.6	37.1	690	18.8	1.74	13.2	95	3.17
	6.0	3.1	7.2	850	29.3	18.7	0.64	0.80	31.9	36.5	950	19.4	1.61	14.0	89	3.54
	8.0	5.1	11.8	610	28.2	16.1	0.57	0.74	30.7	38.1	690	19.2	1.74	13.5	96	3.23
	8.0	5.1	11.8	850	29.3	18.8	0.64	0.78	32.0	37.5	950	19.8	1.61	14.3	89	3.60
40	4.0	1.3	3.0	610	28.4	16.6	0.58	0.89	31.3	31.9	690	21.0	1.77	15.2	98	3.48
	4.0	1.3	3.0	850	29.5	19.3	0.65	0.94	32.7	31.3	950	21.7	1.64	16.1	91	3.89
	6.0	2.8	6.5	610	28.6	16.6	0.58	0.84	31.4	34.1	690	21.9	1.78	16.0	99	3.60
	6.0	2.8	6.5	850	29.7	19.3	0.65	0.89	32.7	33.5	950	22.5	1.65	17.0	92	4.01
	8.0	4.5	10.4	610	28.7	16.6	0.58	0.82	31.4	35.2	690	22.3	1.79	16.4	100	3.65
	8.0	4.5	10.4	850	29.9	19.3	0.65	0.86	32.8	34.6	950	23.0	1.65	17.4	92	4.08
50	4.0	1.3	3.0	610	28.2	16.7	0.59	1.00	31.5	28.1	690	23.9	1.81	17.8	102	3.86
	4.0	1.3	3.0	850	29.3	19.4	0.66	1.06	32.9	27.7	950	24.6	1.67	18.9	94	4.31
	6.0	2.6	6.0	610	28.5	16.8	0.59	0.94	31.6	30.4	690	24.8	1.83	18.7	103	3.99
	6.0	2.6	6.0	850	29.7	19.5	0.66	0.99	33.0	29.8	950	25.6	1.69	19.9	95	4.45
	8.0	4.3	9.9	610	28.6	16.8	0.59	0.91	31.7	31.5	690	25.3	1.83	19.1	104	4.05
	8.0	4.3	9.9	850	29.8	19.5	0.66	0.96	33.0	30.9	950	26.1	1.69	20.3	95	4.52
60	4.0	1.2	2.8	610	27.3	16.4	0.60	1.13	31.1	24.1	690	26.7	1.85	20.4	106	4.22
	4.0	1.2	2.8	850	28.4	19.1	0.67	1.20	32.5	23.7	950	27.5	1.71	21.7	97	4.71
	6.0	2.5	5.8	610	27.8	16.6	0.60	1.06	31.4	26.3	690	27.7	1.87	21.3	107	4.35
	6.0	2.5	5.8	850	28.9	19.3	0.67	1.12	32.7	25.8	950	28.6	1.73	22.7	98	4.85
	8.0	4.0	9.2	610	28.1	16.7	0.59	1.02	31.5	27.4	690	28.3	1.88	21.8	108	4.41
	8.0	4.0	9.2	850	29.2	19.4	0.67	1.08	32.8	26.9	950	29.1	1.73	23.2	98	4.92
70	4.0	1.1	2.5	610	26.1	16.0	0.61	1.28	30.5	20.4	690	29.4	1.89	22.8	109	4.54
	4.0	1.1	2.5	850	27.2	18.7	0.69	1.36	31.8	20.0	950	30.3	1.75	24.3	99	5.07
	6.0	2.3	5.3	610	26.8	16.3	0.61	1.20	30.8	22.3	690	30.5	1.91	23.9	111	4.67
	6.0	2.3	5.3	850	27.9	18.9	0.68	1.27	32.2	22.0	950	31.4	1.77	25.4	101	5.21
	8.0	3.8	8.8	610	27.1	16.4	0.60	1.16	31.0	23.4	690	31.1	1.92	24.4	112	4.74
	8.0	3.8	8.8	850	28.2	19.1	0.68	1.23	32.3	23.0	950	32.0	1.77	25.9	101	5.29
80	4.0	1.0	2.3	610	24.8	15.6	0.63	1.45	29.7	17.1	690	31.9	1.93	25.2	113	4.84
	4.0	1.0	2.3	850	25.8	18.1	0.70	1.54	31.0	16.8	950	32.9	1.79	26.8	102	5.40
	6.0	2.2	5.1	610	25.5	15.8	0.62	1.36	30.1	18.7	690	33.1	1.95	26.3	114	4.97
	6.0	2.2	5.1	850	26.5	18.4	0.69	1.44	31.4	18.4	950	34.1	1.80	27.9	103	5.54
	8.0	3.5	8.1	610	25.9	15.9	0.62	1.32	30.3	19.6	690	33.7	1.96	26.9	115	5.04
	8.0	3.5	8.1	850	26.9	18.6	0.69	1.39	31.6	19.3	950	34.8	1.81	28.5	104	5.62
85	4.0	1.0	2.3	610	24.0	15.3	0.64	1.55	29.3	15.5	690	33.2	1.95	26.3	114	4.98
	4.0	1.0	2.3	850	25.0	17.8	0.71	1.64	30.6	15.2	950	34.2	1.80	28.0	103	5.55
	6.0	2.2	5.0	610	24.8	15.6	0.63	1.45	29.7	17.0	690	34.3	1.97	27.4	116	5.10
	6.0	2.2	5.0	850	25.8	18.1	0.70	1.54	31.0	16.8	950	35.4	1.82	29.2	105	5.69
	8.0	3.5	8.0	610	25.1	15.7	0.62	1.41	29.9	17.9	690	35.0	1.98	28.0	117	5.17
	8.0	3.5	8.0	850	26.1	18.3	0.70	1.49	31.2	17.6	950	36.0	1.83	29.8	105	5.77
90	4.0	1.0	2.3	610	23.3	15.0	0.65	1.65	28.9	14.1	690	34.4	1.97	27.5	116	5.11
	4.0	1.0	2.3	850	24.2	17.5	0.72	1.74	30.2	13.9	950	35.5	1.82	29.2	105	5.70
	6.0	2.1	4.9	610	24.0	15.3	0.64	1.55	29.3	15.6	690	35.6	1.99	28.6	118	5.23
	6.0	2.1	4.9	850	25.0	17.8	0.71	1.63	30.6	15.3	950	36.7	1.84	30.4	106	5.84
	8.0	3.4	7.9	610	24.4	15.4	0.63	1.50	29.5	16.3	690	36.2	2.00	29.1	119	5.30
	8.0	3.4	7.9	850	25.4	18.0	0.71	1.58	30.8	16.0	950	37.3	1.85	31.0	106	5.91
100	4.0	1.0	2.3	610	21.8	14.5	0.67	1.86	28.2	11.7	Operation not recommended					
	4.0	1.0	2.3	850	22.6	16.9	0.75	1.97	29.4	11.5						
	6.0	2.0	4.6	610	22.5	14.8	0.66	1.75	28.5	12.8						
	6.0	2.0	4.6	850	23.4	17.2	0.73	1.86	29.7	12.6						
	8.0	3.2	7.4	610	22.9	14.9	0.65	1.70	28.7	13.5						
	8.0	3.2	7.4	850	23.8	17.3	0.73	1.80	29.9	13.2						
110	4.0	0.9	2.1	610	20.3	14.1	0.69	2.11	27.5	9.6						
	4.0	0.9	2.1	850	21.1	16.4	0.78	2.23	28.7	9.4						
	6.0	1.9	4.4	610	21.0	14.3	0.68	1.99	27.8	10.5						
	6.0	1.9	4.4	850	21.8	16.6	0.76	2.10	29.0	10.4						
	8.0	3.1	7.2	610	21.3	14.4	0.67	1.93	28.0	11.1						
	8.0	3.1	7.2	850	22.2	16.7	0.75	2.04	29.2	10.9						
120	4.0	0.9	2.1	610	18.9	13.7	0.73	2.39	27.1	7.9						
	4.0	0.9	2.1	850	19.7	16.0	0.81	2.52	28.3	7.8						
	6.0	1.8	4.2	610	19.5	13.9	0.71	2.25	27.3	8.7						
	6.0	1.8	4.2	850	20.3	16.2	0.80	2.38	28.5	8.5						
	8.0	3.0	6.9	610	19.9	14.0	0.70	2.19	27.4	9.1						
	8.0	3.0	6.9	850	20.6	16.3	0.79	2.31	28.6	8.9						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

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Performance Data – TS H/V/D 030 (PSC Blower)

950 CFM Nominal (Rated) Airflow Cooling,950 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	8.0	5.6	12.9	Operation not recommended							715	19.9	2.10	13.1	96	2.78
	8.0	5.6	12.9								950	20.4	1.92	13.9	90	3.12
30	4.0	1.5	3.5	715	28.8	16.3	0.57	1.18	32.8	24.4	715	21.7	2.13	14.8	98	2.99
	4.0	1.5	3.5	950	30.0	19.5	0.65	1.22	34.1	24.6	950	22.3	1.95	15.7	92	3.36
	6.0	3.1	7.2	715	28.9	16.3	0.57	1.14	32.8	25.3	715	22.5	2.14	15.6	99	3.08
	6.0	3.1	7.2	950	30.1	19.6	0.65	1.18	34.1	25.5	950	23.1	1.96	16.5	93	3.46
	8.0	5.1	11.8	715	29.0	16.4	0.56	1.11	32.8	26.0	715	23.0	2.15	16.0	100	3.13
	8.0	5.1	11.8	950	30.2	19.6	0.65	1.15	34.1	26.2	950	23.6	1.97	16.9	93	3.52
40	4.0	1.3	3.0	715	31.0	17.8	0.57	1.30	35.5	23.9	715	24.7	2.18	17.5	102	3.32
	4.0	1.3	3.0	950	32.3	21.3	0.66	1.34	36.9	24.1	950	25.3	1.99	18.6	95	3.72
	6.0	2.8	6.5	715	31.2	17.8	0.57	1.25	35.5	24.9	715	25.6	2.20	18.4	103	3.42
	6.0	2.8	6.5	950	32.5	21.3	0.66	1.30	36.9	25.1	950	26.3	2.01	19.5	96	3.84
	8.0	4.5	10.4	715	31.4	17.8	0.57	1.22	35.5	25.7	715	26.2	2.21	18.9	104	3.47
	8.0	4.5	10.4	950	32.7	21.4	0.65	1.26	36.9	25.9	950	26.9	2.02	20.0	96	3.90
50	4.0	1.3	3.0	715	31.9	18.5	0.58	1.44	36.8	22.2	715	27.7	2.24	20.2	106	3.62
	4.0	1.3	3.0	950	33.2	22.2	0.67	1.49	38.3	22.4	950	28.4	2.05	21.4	98	4.07
	6.0	2.6	6.0	715	32.2	18.5	0.58	1.37	36.8	23.4	715	28.8	2.26	21.2	107	3.74
	6.0	2.6	6.0	950	33.5	22.2	0.66	1.42	38.3	23.6	950	29.6	2.07	22.5	99	4.19
	8.0	4.3	9.9	715	32.3	18.5	0.57	1.34	36.9	24.2	715	29.4	2.27	21.8	108	3.79
	8.0	4.3	9.9	950	33.7	22.2	0.66	1.38	38.3	24.4	950	30.2	2.08	23.1	99	4.26
60	4.0	1.2	2.8	715	31.0	18.2	0.59	1.60	36.4	19.4	715	30.6	2.30	22.9	110	3.91
	4.0	1.2	2.8	950	32.3	21.8	0.68	1.65	37.9	19.6	950	31.5	2.10	24.3	101	4.39
	6.0	2.5	5.8	715	31.7	18.5	0.58	1.51	36.8	21.1	715	31.9	2.32	24.1	111	4.03
	6.0	2.5	5.8	950	33.0	22.1	0.67	1.56	38.3	21.2	950	32.8	2.12	25.6	102	4.53
	8.0	4.0	9.2	715	32.0	18.5	0.58	1.46	36.9	21.9	715	32.6	2.34	24.7	112	4.09
	8.0	4.0	9.2	950	33.3	22.2	0.67	1.51	38.4	22.0	950	33.5	2.14	26.2	103	4.60
70	4.0	1.1	2.5	715	29.5	17.6	0.60	1.76	35.5	16.8	715	33.6	2.36	25.6	114	4.18
	4.0	1.1	2.5	950	30.7	21.1	0.69	1.81	36.9	16.9	950	34.5	2.16	27.2	104	4.69
	6.0	2.3	5.3	715	30.5	18.0	0.59	1.65	36.1	18.4	715	35.1	2.39	26.9	115	4.30
	6.0	2.3	5.3	950	31.7	21.6	0.68	1.71	37.5	18.5	950	36.0	2.18	28.5	105	4.83
	8.0	3.8	8.8	715	30.9	18.2	0.59	1.61	36.4	19.2	715	35.8	2.40	27.6	116	4.36
	8.0	3.8	8.8	950	32.2	21.8	0.68	1.66	37.8	19.4	950	36.8	2.20	29.3	106	4.90
80	4.0	1.0	2.3	715	27.7	16.8	0.61	1.94	34.3	14.3	715	36.6	2.42	28.3	117	4.43
	4.0	1.0	2.3	950	28.8	20.2	0.70	2.00	35.6	14.4	950	37.5	2.21	30.0	107	4.97
	6.0	2.2	5.1	715	28.8	17.3	0.60	1.83	35.0	15.8	715	38.1	2.46	29.6	119	4.55
	6.0	2.2	5.1	950	30.0	20.7	0.69	1.89	36.4	15.9	950	39.1	2.25	31.4	108	5.11
	8.0	3.5	8.1	715	29.3	17.5	0.60	1.77	35.4	16.6	715	38.9	2.47	30.4	120	4.61
	8.0	3.5	8.1	950	30.5	21.0	0.69	1.83	36.8	16.7	950	40.0	2.26	32.2	109	5.18
85	4.0	1.0	2.3	715	26.7	16.4	0.62	2.04	33.7	13.1	715	38.0	2.45	29.5	119	4.54
	4.0	1.0	2.3	950	27.8	19.7	0.71	2.11	35.0	13.2	950	39.0	2.24	31.4	108	5.10
	6.0	2.2	5.0	715	27.8	16.9	0.61	1.92	34.4	14.5	715	39.6	2.49	31.0	121	4.66
	6.0	2.2	5.0	950	29.0	20.2	0.70	1.99	35.8	14.6	950	40.6	2.28	32.8	110	5.23
	8.0	3.5	8.0	715	28.4	17.1	0.60	1.87	34.7	15.2	715	40.4	2.51	31.7	122	4.72
	8.0	3.5	8.0	950	29.6	20.5	0.69	1.93	36.1	15.3	950	41.5	2.30	33.6	110	5.30
90	4.0	1.0	2.3	715	25.7	16.0	0.62	2.15	33.1	12.0	715	39.4	2.49	30.8	121	4.65
	4.0	1.0	2.3	950	26.8	19.2	0.72	2.22	34.4	12.1	950	40.5	2.27	32.7	109	5.22
	6.0	2.1	4.9	715	26.9	16.5	0.61	2.02	33.8	13.3	715	41.1	2.53	32.3	123	4.77
	6.0	2.1	4.9	950	28.0	19.7	0.71	2.09	35.1	13.4	950	42.2	2.31	34.3	111	5.35
	8.0	3.4	7.9	715	27.4	16.7	0.61	1.96	34.1	14.0	715	41.9	2.55	33.0	124	4.82
	8.0	3.4	7.9	950	28.6	20.0	0.70	2.03	35.5	14.1	950	43.0	2.33	35.1	112	5.42
100	4.0	1.0	2.3	715	23.9	15.3	0.64	2.39	32.1	10.0	Operation not recommended					
	4.0	1.0	2.3	950	24.9	18.3	0.73	2.47	33.4	10.1						
	6.0	2.0	4.6	715	24.9	15.7	0.63	2.25	32.6	11.1						
	6.0	2.0	4.6	950	26.0	18.8	0.72	2.32	33.9	11.2						
	8.0	3.2	7.4	715	25.5	15.9	0.62	2.18	32.9	11.7						
	8.0	3.2	7.4	950	26.5	19.0	0.72	2.25	34.2	11.8						
110	4.0	0.9	2.1	715	22.4	14.7	0.66	2.68	31.5	8.4						
	4.0	0.9	2.1	950	23.3	17.6	0.76	2.77	32.8	8.4						
	6.0	1.9	4.4	715	23.2	15.0	0.65	2.51	31.7	9.2						
	6.0	1.9	4.4	950	24.1	17.9	0.74	2.60	33.0	9.3						
	8.0	3.1	7.2	715	23.6	15.2	0.64	2.44	31.9	9.7						
	8.0	3.1	7.2	950	24.6	18.1	0.74	2.52	33.2	9.8						
120	4.0	0.9	2.1	715	21.3	14.6	0.68	3.02	31.6	7.1						
	4.0	0.9	2.1	950	22.2	17.4	0.79	3.12	32.9	7.1						
	6.0	1.8	4.2	715	21.8	14.6	0.67	2.82	31.5	7.7						
	6.0	1.8	4.2	950	22.7	17.5	0.77	2.92	32.7	7.8						
	8.0	3.0	6.9	715	22.1	14.7	0.66	2.74	31.5	8.1						
	8.0	3.0	6.9	950	23.0	17.6	0.76	2.83	32.7	8.1						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at 1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at **climatemaster.com**.

Performance Data – TS H/V/D 030 (ECM Blower)

1,000 CFM Nominal (Rated) Airflow Cooling, 1,100 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	8.0	5.6	12.9	Operation not recommended							820	19.8	2.03	13.3	92	2.86
	8.0	5.6	12.9								1100	20.4	1.88	14.1	87	3.19
30	4.0	1.5	3.5	730	29.1	17.0	0.58	1.13	32.9	25.8	820	21.8	2.05	15.1	95	3.12
	4.0	1.5	3.5	1000	30.2	19.8	0.65	1.19	34.3	25.3	1100	22.5	1.89	16.1	89	3.48
	6.0	3.1	7.2	730	29.3	17.0	0.58	1.07	32.9	27.3	820	22.7	2.06	16.0	96	3.23
	6.0	3.1	7.2	1000	30.5	19.8	0.65	1.14	34.3	26.8	1100	23.4	1.90	17.0	90	3.60
	8.0	5.1	11.8	730	29.6	17.2	0.58	1.05	33.1	28.3	820	23.2	2.07	16.4	96	3.29
	8.0	5.1	11.8	1000	30.7	20.0	0.65	1.11	34.5	27.8	1100	23.9	1.91	17.4	90	3.67
40	4.0	1.3	3.0	730	32.2	19.1	0.59	1.26	36.4	25.6	820	24.9	2.09	18.0	98	3.49
	4.0	1.3	3.0	1000	33.5	22.2	0.66	1.33	38.0	25.1	1100	25.6	1.93	19.1	92	3.90
	6.0	2.8	6.5	730	32.6	19.2	0.59	1.19	36.6	27.5	820	25.9	2.10	18.9	99	3.61
	6.0	2.8	6.5	1000	33.9	22.3	0.66	1.26	38.2	27.0	1100	26.7	1.94	20.1	92	4.03
	8.0	4.5	10.4	730	33.1	19.4	0.59	1.16	37.0	28.7	820	26.4	2.11	19.4	100	3.67
	8.0	4.5	10.4	1000	34.4	22.6	0.66	1.22	38.6	28.2	1100	27.2	1.95	20.6	93	4.10
50	4.0	1.3	3.0	730	32.3	19.3	0.60	1.39	36.9	23.2	820	27.8	2.13	20.7	101	3.83
	4.0	1.3	3.0	1000	33.5	22.4	0.67	1.47	38.5	22.8	1100	28.7	1.97	22.0	94	4.27
	6.0	2.6	6.0	730	32.7	19.4	0.59	1.31	37.1	25.0	820	29.0	2.15	21.8	103	3.96
	6.0	2.6	6.0	1000	34.0	22.6	0.67	1.38	38.7	24.6	1100	29.9	1.99	23.1	95	4.41
	8.0	4.3	9.9	730	33.1	19.6	0.59	1.27	37.4	26.1	820	29.6	2.16	22.3	103	4.02
	8.0	4.3	9.9	1000	34.5	22.9	0.66	1.34	39.0	25.7	1100	30.5	2.00	23.7	96	4.49
60	4.0	1.2	2.8	730	31.9	19.5	0.61	1.53	37.1	20.8	820	30.8	2.18	23.4	105	4.14
	4.0	1.2	2.8	1000	33.1	22.7	0.68	1.62	38.7	20.4	1100	31.8	2.01	24.9	97	4.62
	6.0	2.5	5.8	730	32.6	19.7	0.60	1.44	37.5	22.7	820	32.1	2.20	24.6	106	4.27
	6.0	2.5	5.8	1000	33.9	22.9	0.68	1.52	39.1	22.3	1100	33.1	2.04	26.2	98	4.77
	8.0	4.0	9.2	730	32.9	19.8	0.60	1.40	37.6	23.6	820	32.8	2.22	25.3	107	4.34
	8.0	4.0	9.2	1000	34.2	23.0	0.67	1.48	39.2	23.2	1100	33.8	2.05	26.8	98	4.84
70	4.0	1.1	2.5	730	30.3	18.9	0.62	1.69	36.0	17.9	820	33.8	2.23	26.1	108	4.43
	4.0	1.1	2.5	1000	31.5	22.0	0.70	1.79	37.6	17.6	1100	34.8	2.06	27.8	99	4.94
	6.0	2.3	5.3	730	31.3	19.3	0.62	1.59	36.7	19.7	820	35.2	2.26	27.5	110	4.57
	6.0	2.3	5.3	1000	32.6	22.4	0.69	1.68	38.3	19.4	1100	36.3	2.09	29.2	101	5.10
	8.0	3.8	8.8	730	31.8	19.5	0.61	1.54	37.0	20.7	820	36.0	2.28	28.2	111	4.64
	8.0	3.8	8.8	1000	33.1	22.6	0.68	1.63	38.6	20.3	1100	37.1	2.10	30.0	101	5.18
80	4.0	1.0	2.3	730	28.4	18.1	0.64	1.87	34.8	15.2	820	36.8	2.29	28.9	112	4.71
	4.0	1.0	2.3	1000	29.6	21.1	0.71	1.98	36.3	15.0	1100	37.9	2.12	30.7	102	5.25
	6.0	2.2	5.1	730	29.6	18.6	0.63	1.76	35.6	16.9	820	38.4	2.32	30.4	113	4.85
	6.0	2.2	5.1	1000	30.8	21.7	0.70	1.86	37.1	16.6	1100	39.6	2.14	32.3	103	5.41
	8.0	3.5	8.1	730	30.2	18.8	0.62	1.70	36.0	17.7	820	39.3	2.34	31.2	114	4.93
	8.0	3.5	8.1	1000	31.4	21.9	0.70	1.80	37.5	17.4	1100	40.5	2.16	33.1	104	5.50
85	4.0	1.0	2.3	730	27.5	17.8	0.65	1.97	34.2	13.9	820	38.3	2.32	30.3	113	4.84
	4.0	1.0	2.3	1000	28.6	20.7	0.72	2.08	35.7	13.7	1100	39.5	2.14	32.1	103	5.40
	6.0	2.2	5.0	730	28.6	18.2	0.64	1.85	34.9	15.4	820	40.1	2.35	31.9	115	5.00
	6.0	2.2	5.0	1000	29.8	21.2	0.71	1.96	36.4	15.2	1100	41.3	2.17	33.9	105	5.58
	8.0	3.5	8.0	730	29.2	18.5	0.63	1.80	35.3	16.3	820	41.0	2.37	32.7	116	5.08
	8.0	3.5	8.0	1000	30.4	21.5	0.71	1.90	36.8	16.0	1100	42.3	2.19	34.8	106	5.67
90	4.0	1.0	2.3	730	26.5	17.4	0.66	2.07	33.6	12.8	820	39.8	2.35	31.6	115	4.98
	4.0	1.0	2.3	1000	27.5	20.2	0.73	2.19	35.0	12.6	1100	41.1	2.17	33.6	105	5.55
	6.0	2.1	4.9	730	27.6	17.8	0.65	1.95	34.3	14.2	820	41.7	2.38	33.4	117	5.14
	6.0	2.1	4.9	1000	28.7	20.7	0.72	2.06	35.8	13.9	1100	43.0	2.20	35.5	106	5.73
	8.0	3.4	7.9	730	28.2	18.1	0.64	1.89	34.7	14.9	820	42.7	2.40	34.3	118	5.23
	8.0	3.4	7.9	1000	29.4	21.0	0.72	2.00	36.2	14.7	1100	44.1	2.21	36.5	107	5.83
100	4.0	1.0	2.3	730	24.7	16.7	0.68	2.31	32.6	10.7	Operation not recommended					
	4.0	1.0	2.3	1000	25.7	19.5	0.76	2.44	34.0	10.5						
	6.0	2.0	4.6	730	25.7	17.1	0.67	2.17	33.1	11.8						
	6.0	2.0	4.6	1000	26.7	19.9	0.74	2.30	34.6	11.6						
	8.0	3.2	7.4	730	26.2	17.3	0.66	2.10	33.4	12.5						
	8.0	3.2	7.4	1000	27.3	20.1	0.74	2.23	34.9	12.3						
110	4.0	0.9	2.1	730	23.2	16.4	0.70	2.59	32.1	9.0						
	4.0	0.9	2.1	1000	24.1	19.0	0.79	2.74	33.5	8.8						
	6.0	1.9	4.4	730	24.0	16.5	0.69	2.43	32.3	9.9						
	6.0	1.9	4.4	1000	24.9	19.2	0.77	2.57	33.7	9.7						
	8.0	3.1	7.2	730	24.4	16.6	0.68	2.35	32.5	10.4						
	8.0	3.1	7.2	1000	25.4	19.4	0.76	2.49	33.9	10.2						
120	4.0	0.9	2.1	730	22.0	16.1	0.73	2.87	31.9	7.7						
	4.0	0.9	2.1	1000	22.8	18.7	0.82	3.04	33.2	7.5						
	6.0	1.8	4.2	730	22.5	16.1	0.72	2.74	31.9	8.2						
	6.0	1.8	4.2	1000	23.4	18.8	0.80	2.90	33.3	8.1						
	8.0	3.0	6.9	730	22.7	16.2	0.71	2.67	31.9	8.5						
	8.0	3.0	6.9	1000	23.6	18.9	0.80	2.82	33.3	8.4						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

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Performance Data – TS H/V/D 036 (PSC Blower)

1,250 CFM Nominal (Rated) Airflow Cooling, 1,250 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	9.0	5.9	13.6	Operation not recommended							940	21.7	2.41	14.0	91	2.64
	9.0	5.9	13.6								1250	22.3	2.21	14.9	87	2.96
30	4.5	1.7	3.9	940	32.8	18.6	0.57	1.49	37.9	22.0	940	24.0	2.44	16.1	94	2.88
	4.5	1.7	3.9	1250	34.1	22.3	0.65	1.54	39.4	22.2	1250	24.6	2.23	17.1	88	3.23
	6.8	3.3	7.6	940	33.1	18.6	0.56	1.43	38.0	23.2	940	24.9	2.45	16.9	94	2.97
	6.8	3.3	7.6	1250	34.5	22.3	0.65	1.48	39.5	23.4	1250	25.5	2.24	18.0	89	3.34
	9.0	5.7	13.2	940	33.3	18.7	0.56	1.40	38.1	23.8	940	25.4	2.46	17.4	95	3.02
	9.0	5.7	13.2	1250	34.7	22.4	0.65	1.45	39.6	24.0	1250	26.0	2.25	18.4	89	3.40
40	4.5	1.5	3.5	940	35.5	21.0	0.59	1.57	40.8	22.6	940	27.3	2.48	19.2	97	3.23
	4.5	1.5	3.5	1250	36.9	25.1	0.68	1.62	42.4	22.8	1250	28.1	2.27	20.4	91	3.62
	6.8	3.2	7.4	940	35.6	21.0	0.59	1.54	40.9	23.1	940	28.4	2.50	20.2	98	3.33
	6.8	3.2	7.4	1250	37.1	25.2	0.68	1.60	42.5	23.3	1250	29.2	2.29	21.5	92	3.74
	9.0	5.4	12.5	940	35.9	21.3	0.59	1.51	41.1	23.8	940	29.0	2.51	20.8	99	3.39
	9.0	5.4	12.5	1250	37.4	25.5	0.68	1.56	42.7	24.0	1250	29.8	2.29	22.0	92	3.81
50	4.5	1.3	3.0	940	35.9	21.7	0.60	1.75	41.8	20.5	940	30.8	2.53	22.4	100	3.56
	4.5	1.3	3.0	1250	37.3	26.0	0.70	1.81	43.5	20.6	1250	31.6	2.32	23.7	93	4.00
	6.8	3.1	7.2	940	36.2	21.8	0.60	1.67	41.9	21.7	940	32.1	2.56	23.6	102	3.68
	6.8	3.1	7.2	1250	37.7	26.1	0.69	1.72	43.5	21.9	1250	33.0	2.34	25.0	94	4.13
	9.0	5.2	12.0	940	36.9	22.1	0.60	1.63	42.5	22.7	940	32.8	2.57	24.2	102	3.75
	9.0	5.2	12.0	1250	38.5	26.4	0.69	1.68	44.2	22.8	1250	33.7	2.35	25.7	95	4.21
60	4.5	1.2	2.8	940	34.6	21.6	0.63	1.90	41.1	18.2	940	34.3	2.59	25.6	104	3.88
	4.5	1.2	2.8	1250	36.0	25.9	0.72	1.96	42.7	18.4	1250	35.2	2.37	27.2	96	4.36
	6.8	2.9	6.7	940	35.5	21.9	0.62	1.80	41.6	19.7	940	35.8	2.62	27.0	105	4.01
	6.8	2.9	6.7	1250	37.0	26.2	0.71	1.86	43.3	19.8	1250	36.8	2.39	28.6	97	4.51
	9.0	5.0	11.6	940	35.8	21.9	0.61	1.76	41.8	20.4	940	36.7	2.63	27.8	106	4.09
	9.0	5.0	11.6	1250	37.3	26.3	0.70	1.82	43.5	20.5	1250	37.6	2.40	29.5	98	4.59
70	4.5	1.1	2.5	940	32.8	21.0	0.64	2.06	39.9	15.9	940	37.9	2.65	28.9	107	4.19
	4.5	1.1	2.5	1250	34.2	25.1	0.73	2.13	41.4	16.0	1250	38.9	2.42	30.6	99	4.70
	6.8	2.9	6.7	940	34.0	21.4	0.63	1.96	40.7	17.4	940	39.7	2.68	30.5	109	4.33
	6.8	2.9	6.7	1250	35.4	25.6	0.72	2.02	42.3	17.5	1250	40.7	2.45	32.3	100	4.87
	9.0	4.8	11.1	940	34.5	21.6	0.63	1.91	41.0	18.1	940	40.6	2.70	31.4	110	4.41
	9.0	4.8	11.1	1250	35.9	25.9	0.72	1.97	42.7	18.2	1250	41.7	2.47	33.3	101	4.95
80	4.5	1.0	2.3	940	30.8	20.2	0.65	2.25	38.5	13.7	940	41.6	2.72	32.2	111	4.48
	4.5	1.0	2.3	1250	32.1	24.1	0.75	2.32	40.0	13.8	1250	42.7	2.48	34.2	102	5.04
	6.8	2.8	6.5	940	32.0	20.6	0.64	2.13	39.3	15.0	940	43.6	2.75	34.1	113	4.64
	6.8	2.8	6.5	1250	33.4	24.7	0.74	2.21	40.9	15.1	1250	44.8	2.52	36.1	103	5.21
	9.0	4.5	10.4	940	32.6	20.9	0.64	2.08	39.7	15.7	940	44.7	2.77	35.1	114	4.72
	9.0	4.5	10.4	1250	34.0	25.0	0.74	2.15	41.3	15.8	1250	45.9	2.54	37.2	104	5.30
85	4.5	1.0	2.2	940	29.8	19.8	0.66	2.36	37.9	12.7	940	43.4	2.75	33.9	113	4.63
	4.5	1.0	2.2	1250	31.1	23.7	0.76	2.44	39.4	12.8	1250	44.6	2.52	36.0	103	5.20
	6.8	2.7	6.2	940	31.0	20.2	0.65	2.24	38.6	13.9	940	45.6	2.79	35.9	115	4.79
	6.8	2.7	6.2	1250	32.3	24.2	0.75	2.31	40.2	14.0	1250	46.8	2.55	38.1	105	5.38
	9.0	4.5	10.3	940	31.6	20.5	0.65	2.18	39.0	14.5	940	46.8	2.82	37.0	116	4.87
	9.0	4.5	10.3	1250	32.9	24.5	0.74	2.25	40.6	14.6	1250	48.1	2.57	39.2	106	5.47
90	4.5	0.9	2.1	940	28.9	19.4	0.67	2.47	37.3	11.7	940	45.3	2.79	35.6	115	4.77
	4.5	0.9	2.1	1250	30.1	23.3	0.77	2.55	38.8	11.8	1250	46.5	2.55	37.8	104	5.35
	6.8	2.6	6.0	940	30.0	19.8	0.66	2.34	38.0	12.8	940	47.6	2.83	37.7	117	4.93
	6.8	2.6	6.0	1250	31.2	23.7	0.76	2.42	39.5	12.9	1250	48.9	2.59	40.0	106	5.54
	9.0	4.4	10.2	940	30.6	20.1	0.66	2.27	38.3	13.4	940	48.9	2.86	38.9	118	5.02
	9.0	4.4	10.2	1250	31.8	24.0	0.75	2.35	39.9	13.5	1250	50.2	2.61	41.3	107	5.64
100	4.5	0.8	1.8	940	27.3	19.0	0.70	2.72	36.6	10.0	Operation not recommended					
	4.5	0.8	1.8	1250	28.5	22.8	0.80	2.81	38.1	10.1						
	6.8	2.6	6.0	940	28.1	19.2	0.68	2.57	36.9	10.9						
	6.8	2.6	6.0	1250	29.3	23.0	0.78	2.66	38.4	11.0						
	9.0	4.2	9.7	940	28.6	19.3	0.68	2.50	37.2	11.4						
	9.0	4.2	9.7	1250	29.8	23.2	0.78	2.59	38.6	11.5						
110	4.5	0.8	1.8	940	26.4	18.9	0.71	2.99	36.6	8.8						
	4.5	0.8	1.8	1250	27.5	22.6	0.82	3.09	38.1	8.9						
	6.8	2.5	5.8	940	26.9	19.0	0.71	2.85	36.6	9.4	Operation not recommended					
	6.8	2.5	5.8	1250	28.0	22.8	0.81	2.95	38.1	9.5						
	9.0	4.0	9.2	940	27.2	19.1	0.70	2.77	36.7	9.8						
	9.0	4.0	9.2	1250	28.3	22.8	0.81	2.86	38.1	9.9						
120	4.5	0.7	1.6	940	25.8	19.3	0.75	3.33	37.2	7.7						
	4.5	0.7	1.6	1250	26.9	23.1	0.86	3.44	38.7	7.8						
	6.8	2.5	5.8	940	26.4	19.6	0.74	3.18	37.2	8.3						
	6.8	2.5	5.8	1250	27.5	23.5	0.86	3.29	38.7	8.4						
	9.0	3.8	8.8	940	26.9	19.7	0.73	3.09	37.4	8.7						
	9.0	3.8	8.8	1250	28.0	23.6	0.84	3.19	38.9	8.8						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at 1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at **climatemaster.com**.

Performance Data – TS H/V/D 036 (ECM Blower)

1,250 CFM Nominal (Rated) Airflow Cooling, 1,250 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	9.0	5.9	13.6	Operation not recommended							900	21.5	2.06	14.8	92	3.06
	9.0	5.9	13.6								1250	22.1	1.90	15.7	86	3.42
30	4.5	1.7	3.9	900	33.0	19.5	0.59	1.16	36.9	28.5	900	23.7	2.09	16.9	94	3.33
	4.5	1.7	3.9	1250	34.3	22.7	0.66	1.22	38.4	28.0	1250	24.5	1.93	17.9	88	3.72
	6.8	3.3	7.6	900	33.1	19.5	0.59	1.13	36.9	29.4	900	24.7	2.10	17.8	95	3.45
	6.8	3.3	7.6	1250	34.4	22.7	0.66	1.19	38.4	28.9	1250	25.5	1.94	18.9	89	3.84
	9.0	5.7	13.2	900	33.3	19.6	0.59	1.10	36.9	30.3	900	25.3	2.11	18.3	96	3.51
	9.0	5.7	13.2	1250	34.6	22.8	0.66	1.16	38.5	29.8	1250	26.1	1.95	19.4	89	3.91
40	4.5	1.5	3.5	900	36.1	22.4	0.62	1.29	40.4	28.1	900	27.3	2.14	20.1	98	3.73
	4.5	1.5	3.5	1250	37.5	26.1	0.69	1.36	42.2	27.6	1250	28.1	1.98	21.4	91	4.17
	6.8	3.2	7.4	900	36.3	22.4	0.62	1.24	40.5	29.2	900	28.5	2.16	21.3	99	3.87
	6.8	3.2	7.4	1250	37.7	26.1	0.69	1.32	42.2	28.7	1250	29.4	2.00	22.6	92	4.32
	9.0	5.4	12.5	900	36.7	22.5	0.61	1.21	40.7	30.3	900	29.2	2.17	21.9	100	3.94
	9.0	5.4	12.5	1250	38.1	26.2	0.69	1.28	42.4	29.8	1250	30.1	2.01	23.3	92	4.40
50	4.5	1.3	3.0	900	37.1	23.9	0.64	1.42	41.9	26.1	900	30.9	2.20	23.5	102	4.12
	4.5	1.3	3.0	1250	38.6	27.9	0.72	1.51	43.7	25.6	1250	31.9	2.03	25.0	94	4.60
	6.8	3.1	7.2	900	37.4	23.8	0.64	1.37	42.0	27.3	900	32.4	2.22	24.8	103	4.27
	6.8	3.1	7.2	1250	38.9	27.7	0.71	1.45	43.8	26.9	1250	33.4	2.05	26.4	95	4.77
	9.0	5.2	12.0	900	37.6	23.8	0.63	1.33	42.1	28.3	900	33.2	2.23	25.6	104	4.35
	9.0	5.2	12.0	1250	39.1	27.6	0.71	1.41	43.9	27.8	1250	34.2	2.06	27.2	95	4.85
60	4.5	1.2	2.8	900	36.3	23.8	0.66	1.60	41.7	22.7	900	34.6	2.26	26.9	106	4.49
	4.5	1.2	2.8	1250	37.8	27.7	0.73	1.69	43.5	22.4	1250	35.7	2.09	28.6	96	5.01
	6.8	2.9	6.7	900	37.1	24.1	0.65	1.50	42.1	24.7	900	36.3	2.29	28.4	107	4.65
	6.8	2.9	6.7	1250	38.5	28.0	0.73	1.59	43.9	24.2	1250	37.4	2.11	30.2	98	5.19
	9.0	5.0	11.6	900	37.3	24.1	0.65	1.46	42.2	25.6	900	37.2	2.30	29.3	108	4.74
	9.0	5.0	11.6	1250	38.8	28.0	0.72	1.54	44.0	25.1	1250	38.4	2.13	31.1	98	5.29
70	4.5	1.1	2.5	900	34.6	23.1	0.67	1.76	40.6	19.7	900	38.3	2.32	30.3	109	4.84
	4.5	1.1	2.5	1250	36.0	26.9	0.75	1.86	42.3	19.4	1250	39.5	2.15	32.2	99	5.40
	6.8	2.9	6.7	900	35.8	23.6	0.66	1.65	41.4	21.6	900	40.2	2.35	32.0	111	5.01
	6.8	2.9	6.7	1250	37.2	27.5	0.74	1.75	43.1	21.3	1250	41.5	2.18	34.0	101	5.58
	9.0	4.8	11.1	900	36.3	23.8	0.66	1.60	41.7	22.6	900	41.2	2.37	32.9	112	5.09
	9.0	4.8	11.1	1250	37.7	27.7	0.73	1.70	43.5	22.2	1250	42.5	2.19	35.0	101	5.68
80	4.5	1.0	2.3	900	32.5	22.1	0.68	1.94	39.1	16.8	900	42.0	2.39	33.6	113	5.16
	4.5	1.0	2.3	1250	33.8	25.7	0.76	2.05	40.8	16.5	1250	43.3	2.21	35.8	102	5.75
	6.8	2.8	6.5	900	33.9	22.7	0.67	1.82	40.0	18.6	900	44.1	2.43	35.5	115	5.33
	6.8	2.8	6.5	1250	35.2	26.4	0.75	1.93	41.8	18.2	1250	45.5	2.24	37.8	104	5.94
	9.0	4.5	10.4	900	34.5	23.0	0.67	1.77	40.5	19.5	900	45.2	2.45	36.5	117	5.41
	9.0	4.5	10.4	1250	35.9	26.8	0.75	1.87	42.2	19.2	1250	46.6	2.26	38.8	105	6.04
85	4.5	1.0	2.2	900	31.4	21.5	0.69	2.04	38.4	15.4	900	43.9	2.42	35.3	115	5.30
	4.5	1.0	2.2	1250	32.7	25.1	0.77	2.16	40.0	15.1	1250	45.2	2.24	37.5	103	5.92
	6.8	2.7	6.2	900	32.7	22.2	0.68	1.92	39.3	17.0	900	46.0	2.47	37.3	117	5.47
	6.8	2.7	6.2	1250	34.0	25.8	0.76	2.03	41.0	16.7	1250	47.4	2.28	39.6	105	6.10
	9.0	4.5	10.3	900	33.4	22.5	0.67	1.86	39.7	17.9	900	47.2	2.49	38.3	119	5.55
	9.0	4.5	10.3	1250	34.7	26.2	0.75	1.97	41.4	17.6	1250	48.6	2.30	40.7	106	6.20
90	4.5	0.9	2.1	900	30.3	21.0	0.69	2.14	37.6	14.1	900	45.7	2.46	37.0	117	5.45
	4.5	0.9	2.1	1250	31.5	24.4	0.78	2.27	39.2	13.9	1250	47.1	2.27	39.3	105	6.08
	6.8	2.6	6.0	900	31.6	21.6	0.68	2.02	38.5	15.7	900	47.9	2.50	39.0	119	5.61
	6.8	2.6	6.0	1250	32.9	25.2	0.77	2.14	40.2	15.4	1250	49.4	2.31	41.4	107	6.26
	9.0	4.4	10.2	900	32.3	22.0	0.68	1.96	39.0	16.5	900	49.1	2.53	40.1	121	5.69
	9.0	4.4	10.2	1250	33.6	25.5	0.76	2.07	40.7	16.2	1250	50.6	2.34	42.6	108	6.35
100	4.5	0.8	1.8	900	28.2	20.1	0.71	2.38	36.3	11.8	Operation not recommended					
	4.5	0.8	1.8	1250	29.3	23.4	0.80	2.52	37.9	11.6						
	6.8	2.6	6.0	900	29.3	20.6	0.70	2.24	37.0	13.1						
	6.8	2.6	6.0	1250	30.5	23.9	0.78	2.37	38.6	12.9						
	9.0	4.2	9.7	900	30.0	20.9	0.70	2.18	37.4	13.8						
	9.0	4.2	9.7	1250	31.2	24.3	0.78	2.30	39.0	13.5						
110	4.5	0.8	1.8	900	26.4	19.6	0.74	2.66	35.5	9.9						
	4.5	0.8	1.8	1250	27.4	22.8	0.83	2.82	37.1	9.7						
	6.8	2.5	5.8	900	27.3	19.8	0.72	2.50	35.9	10.9						
	6.8	2.5	5.8	1250	28.4	23.0	0.81	2.65	37.4	10.7						
	9.0	4.0	9.2	900	27.8	20.0	0.72	2.43	36.1	11.5						
	9.0	4.0	9.2	1250	28.9	23.2	0.80	2.57	37.7	11.3						
120	4.5	0.7	1.6	900	25.1	19.3	0.77	2.98	35.3	8.4						
	4.5	0.7	1.6	1250	26.1	22.5	0.86	3.15	36.8	8.3						
	6.8	2.5	5.8	900	25.8	19.5	0.76	2.81	35.4	9.2						
	6.8	2.5	5.8	1250	26.8	22.7	0.85	2.97	36.9	9.0						
	9.0	3.8	8.8	900	26.1	19.5	0.75	2.72	35.5	9.6						
	9.0	3.8	8.8	1250	27.1	22.7	0.84	2.88	37.0	9.4						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
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1,400 CFM Nominal (Rated) Airflow Cooling, 1,400 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	11.0	4.0	9.2	Operation not recommended							1050	27.1	2.94	17.7	94	2.70
	11.0	4.0	9.2								1400	27.8	2.69	18.8	88	3.03
30	5.5	1.1	2.5	1050	38.8	23.0	0.59	1.53	44.0	25.4	1050	29.6	2.96	20.0	96	2.93
	5.5	1.1	2.5	1400	40.4	27.6	0.68	1.58	45.7	25.6	1400	30.4	2.71	21.2	90	3.28
	8.3	2.2	5.1	1050	39.4	23.0	0.58	1.51	44.5	26.1	1050	30.7	2.97	21.0	97	3.02
	8.3	2.2	5.1	1400	41.0	27.6	0.67	1.56	46.3	26.3	1400	31.5	2.72	22.3	91	3.40
	11.0	3.9	9.0	1050	39.8	23.1	0.58	1.46	44.8	27.4	1050	31.3	2.98	21.6	98	3.08
	11.0	3.9	9.0	1400	41.5	27.6	0.67	1.50	46.6	27.6	1400	32.1	2.73	22.9	91	3.46
40	5.5	1.0	2.3	1050	42.0	25.7	0.61	1.77	48.1	23.8	1050	33.8	3.01	23.9	100	3.29
	5.5	1.0	2.3	1400	43.8	30.8	0.70	1.83	50.0	24.0	1400	34.7	2.75	25.4	93	3.69
	8.3	2.1	4.9	1050	42.5	25.7	0.60	1.70	48.3	25.0	1050	35.2	3.03	25.3	101	3.41
	8.3	2.1	4.9	1400	44.3	30.7	0.69	1.76	50.3	25.2	1400	36.2	2.77	26.8	94	3.83
	11.0	3.7	8.5	1050	43.3	25.9	0.60	1.66	48.9	26.1	1050	36.0	3.04	26.0	102	3.48
	11.0	3.7	8.5	1400	45.1	31.0	0.69	1.72	50.9	26.3	1400	37.0	2.78	27.6	94	3.90
50	5.5	0.9	2.1	1050	42.5	26.6	0.63	1.99	49.3	21.3	1050	38.3	3.07	28.1	104	3.66
	5.5	0.9	2.1	1400	44.3	31.9	0.72	2.06	51.2	21.5	1400	39.3	2.81	29.8	96	4.10
	8.3	2.1	4.9	1050	43.1	26.6	0.62	1.88	49.5	22.9	1050	40.1	3.10	29.7	105	3.79
	8.3	2.1	4.9	1400	44.8	31.9	0.71	1.94	51.4	23.1	1400	41.2	2.83	31.5	97	4.26
	11.0	3.6	8.3	1050	43.6	26.7	0.61	1.83	49.8	23.8	1050	41.1	3.11	30.6	106	3.87
	11.0	3.6	8.3	1400	45.4	32.0	0.71	1.89	51.8	24.0	1400	42.2	2.85	32.5	98	4.34
60	5.5	0.9	2.1	1050	40.6	26.0	0.64	2.17	48.0	18.7	1050	43.0	3.15	32.3	108	4.00
	5.5	0.9	2.1	1400	42.3	31.1	0.73	2.24	49.9	18.9	1400	44.1	2.88	34.3	99	4.49
	8.3	2.0	4.6	1050	41.9	26.4	0.63	2.06	48.9	20.3	1050	45.1	3.19	34.2	110	4.14
	8.3	2.0	4.6	1400	43.6	31.7	0.73	2.13	50.9	20.5	1400	46.3	2.91	36.3	101	4.65
	11.0	3.5	8.1	1050	42.5	26.6	0.63	1.99	49.3	21.4	1050	45.7	3.20	34.8	110	4.18
	11.0	3.5	8.1	1400	44.3	31.9	0.72	2.05	51.3	21.6	1400	46.9	2.93	36.9	101	4.70
70	5.5	0.8	1.8	1050	38.0	24.8	0.65	2.37	46.1	16.1	1050	47.6	3.24	36.6	112	4.31
	5.5	0.8	1.8	1400	39.6	29.7	0.75	2.45	48.0	16.2	1400	48.9	2.96	38.8	102	4.84
	8.3	2.0	4.6	1050	39.6	25.5	0.64	2.25	47.3	17.6	1050	49.9	3.29	38.6	114	4.44
	8.3	2.0	4.6	1400	41.3	30.6	0.74	2.33	49.2	17.8	1400	51.2	3.01	41.0	104	4.99
	11.0	3.2	7.4	1050	40.4	25.9	0.64	2.19	47.9	18.4	1050	51.1	3.33	39.7	115	4.51
	11.0	3.2	7.4	1400	42.1	31.0	0.74	2.26	49.8	18.6	1400	52.5	3.04	42.1	105	5.06
80	5.5	0.7	1.6	1050	35.1	23.4	0.67	2.59	44.0	13.6	1050	52.1	3.35	40.5	116	4.56
	5.5	0.7	1.6	1400	36.6	28.0	0.77	2.68	45.7	13.7	1400	53.5	3.07	43.0	105	5.12
	8.3	1.9	4.4	1050	36.8	24.2	0.66	2.46	45.2	14.9	1050	54.5	3.42	42.6	118	4.66
	8.3	1.9	4.4	1400	38.3	29.0	0.76	2.54	47.0	15.1	1400	55.9	3.13	45.2	107	5.24
	11.0	3.2	7.4	1050	37.6	24.6	0.65	2.40	45.8	15.7	1050	55.7	3.46	43.7	119	4.71
	11.0	3.2	7.4	1400	39.2	29.5	0.75	2.48	47.6	15.8	1400	57.2	3.17	46.3	108	5.29
85	5.5	0.7	1.6	1050	33.7	22.7	0.67	2.70	42.9	12.5	1050	54.2	3.42	42.4	118	4.65
	5.5	0.7	1.6	1400	35.1	27.2	0.77	2.79	44.7	12.6	1400	55.6	3.12	44.9	107	5.22
	8.3	1.9	4.3	1050	35.3	23.5	0.66	2.57	44.1	13.8	1050	56.5	3.50	44.3	120	4.73
	8.3	1.9	4.3	1400	36.8	28.1	0.76	2.65	45.8	13.9	1400	58.0	3.20	47.0	108	5.32
	11.0	3.2	7.3	1050	36.1	23.9	0.66	2.50	44.7	14.5	1050	57.6	3.54	45.3	121	4.77
	11.0	3.2	7.3	1400	37.6	28.6	0.76	2.58	46.4	14.6	1400	59.2	3.24	48.1	109	5.35
90	5.5	0.7	1.6	1050	32.3	22.0	0.68	2.81	41.9	11.5	1050	56.3	3.48	44.2	120	4.73
	5.5	0.7	1.6	1400	33.6	26.4	0.78	2.91	43.6	11.6	1400	57.8	3.18	46.9	108	5.32
	8.3	1.8	4.2	1050	33.8	22.7	0.67	2.67	42.9	12.7	1050	58.5	3.57	46.0	122	4.80
	8.3	1.8	4.2	1400	35.2	27.2	0.77	2.76	44.6	12.8	1400	60.0	3.26	48.9	110	5.39
	11.0	3.1	7.2	1050	34.6	23.1	0.67	2.60	43.5	13.3	1050	59.6	3.62	46.9	123	4.82
	11.0	3.1	7.2	1400	36.0	27.7	0.77	2.69	45.2	13.4	1400	61.1	3.31	49.8	110	5.41
100	5.5	0.6	1.4	1050	29.9	21.0	0.70	3.05	40.3	9.8	Operation not recommended					
	5.5	0.6	1.4	1400	31.1	25.1	0.81	3.15	41.9	9.9						
	8.3	1.8	4.2	1050	31.0	21.5	0.69	2.90	40.9	10.7						
	8.3	1.8	4.2	1400	32.3	25.7	0.80	3.00	42.6	10.8						
	11.0	2.9	6.7	1050	31.7	21.8	0.69	2.81	41.3	11.3						
	11.0	2.9	6.7	1400	33.0	26.1	0.79	2.90	43.0	11.4						
110	5.5	0.6	1.4	1050	28.4	20.6	0.73	3.21	39.4	8.8						
	5.5	0.6	1.4	1400	29.6	24.7	0.84	3.32	40.9	8.9						
	8.3	1.7	3.9	1050	29.0	20.7	0.71	3.12	39.6	9.3						
	8.3	1.7	3.9	1400	30.2	24.8	0.82	3.22	41.2	9.4						
	11.0	2.9	6.7	1050	29.4	20.8	0.71	3.06	39.9	9.6						
	11.0	2.9	6.7	1400	30.6	24.9	0.81	3.16	41.5	9.7						
120	5.5	0.6	1.4	1050	28.0	20.9	0.75	3.33	39.4	8.4						
	5.5	0.6	1.4	1400	29.1	25.0	0.86	3.44	40.9	8.5						
	8.3	1.6	3.7	1050	28.2	20.9	0.74	3.27	39.3	8.6						
	8.3	1.6	3.7	1400	29.3	25.0	0.85	3.38	40.9	8.7						
	11.0	2.7	6.2	1050	28.4	20.9	0.74	3.25	39.5	8.8						
	11.0	2.7	6.2	1400	29.6	25.1	0.85	3.35	41.1	8.8						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at 1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at **climatemaster.com**.

Performance Data – TS H/V/D 042 (ECM Blower)

1,400 CFM Nominal (Rated) Airflow Cooling, 1,400 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	11.0	4.0	9.2	Operation not recommended							1050	25.8	2.53	17.6	93	2.98
	11.0	4.0	9.2								1400	26.6	2.34	18.7	88	3.33
30	5.5	1.1	2.5	1050	42.9	27.1	0.63	1.40	47.6	30.6	1050	28.0	2.57	19.6	95	3.19
	5.5	1.1	2.5	1400	44.6	31.5	0.71	1.48	49.6	30.1	1400	28.8	2.38	20.8	89	3.55
	8.3	2.2	5.1	1050	43.2	27.1	0.63	1.33	47.6	32.4	1050	29.0	2.59	20.5	96	3.28
	8.3	2.2	5.1	1400	44.9	31.6	0.70	1.41	49.7	31.8	1400	29.9	2.39	21.8	90	3.66
	11.0	3.9	9.0	1050	43.7	27.2	0.62	1.30	48.0	33.6	1050	29.6	2.60	21.0	96	3.33
	11.0	3.9	9.0	1400	45.4	31.6	0.70	1.38	50.1	33.0	1400	30.5	2.40	22.3	90	3.72
40	5.5	1.0	2.3	1050	44.0	28.9	0.66	1.51	49.0	29.1	1050	32.1	2.64	23.3	98	3.56
	5.5	1.0	2.3	1400	45.7	33.6	0.73	1.60	51.1	28.6	1400	33.1	2.44	24.8	92	3.97
	8.3	2.1	4.9	1050	44.3	29.0	0.65	1.46	49.2	30.4	1050	33.5	2.66	24.7	100	3.69
	8.3	2.1	4.9	1400	46.1	33.8	0.73	1.54	51.3	29.9	1400	34.6	2.46	26.2	93	4.12
	11.0	3.7	8.5	1050	44.6	29.1	0.65	1.42	49.3	31.4	1050	34.4	2.68	25.4	100	3.76
	11.0	3.7	8.5	1400	46.3	33.9	0.73	1.50	51.4	30.9	1400	35.4	2.47	27.0	93	4.20
50	5.5	0.9	2.1	1050	43.3	29.5	0.68	1.69	49.0	25.7	1050	36.8	2.71	27.7	102	3.97
	5.5	0.9	2.1	1400	45.1	34.3	0.76	1.78	51.1	25.2	1400	37.9	2.51	29.4	95	4.43
	8.3	2.1	4.9	1050	44.0	29.6	0.67	1.59	49.4	27.6	1050	38.7	2.74	29.4	104	4.13
	8.3	2.1	4.9	1400	45.8	34.4	0.75	1.69	51.5	27.2	1400	39.9	2.53	31.2	96	4.61
	11.0	3.6	8.3	1050	44.3	29.6	0.67	1.55	49.4	28.6	1050	39.7	2.76	30.4	105	4.22
	11.0	3.6	8.3	1400	46.0	34.5	0.75	1.64	51.5	28.1	1400	41.0	2.55	32.3	97	4.71
60	5.5	0.9	2.1	1050	41.6	28.7	0.69	1.86	47.9	22.4	1050	41.8	2.79	32.2	107	4.39
	5.5	0.9	2.1	1400	43.3	33.4	0.77	1.96	49.9	22.0	1400	43.1	2.58	34.3	98	4.89
	8.3	2.0	4.6	1050	42.7	29.2	0.68	1.75	48.6	24.4	1050	44.0	2.83	34.3	109	4.56
	8.3	2.0	4.6	1400	44.4	34.0	0.77	1.85	50.7	24.0	1400	45.4	2.62	36.5	100	5.09
	11.0	3.5	8.1	1050	43.2	29.4	0.68	1.70	48.9	25.4	1050	45.3	2.85	35.4	110	4.65
	11.0	3.5	8.1	1400	44.9	34.2	0.76	1.80	51.0	25.0	1400	46.7	2.63	37.7	101	5.19
70	5.5	0.8	1.8	1050	39.4	27.6	0.70	2.05	46.3	19.2	1050	46.8	2.88	36.8	111	4.77
	5.5	0.8	1.8	1400	40.9	32.1	0.78	2.17	48.3	18.9	1400	48.3	2.66	39.2	102	5.32
	8.3	2.0	4.6	1050	40.7	28.3	0.69	1.93	47.3	21.1	1050	49.3	2.93	39.1	113	4.94
	8.3	2.0	4.6	1400	42.4	32.9	0.78	2.04	49.3	20.7	1400	50.8	2.70	41.6	104	5.51
	11.0	3.2	7.4	1050	41.4	28.6	0.69	1.87	47.7	22.1	1050	50.6	2.95	40.3	115	5.02
	11.0	3.2	7.4	1400	43.0	33.3	0.77	1.98	49.8	21.7	1400	52.2	2.73	42.8	105	5.60
80	5.5	0.7	1.6	1050	36.9	26.3	0.71	2.27	44.7	16.2	1050	51.6	2.97	41.2	115	5.08
	5.5	0.7	1.6	1400	38.4	30.6	0.80	2.40	46.6	16.0	1400	53.2	2.75	43.8	105	5.67
	8.3	1.9	4.4	1050	38.3	27.0	0.70	2.14	45.6	17.9	1050	54.1	3.03	43.4	118	5.23
	8.3	1.9	4.4	1400	39.9	31.5	0.79	2.26	47.6	17.6	1400	55.8	2.80	46.1	107	5.83
	11.0	3.2	7.4	1050	39.1	27.4	0.70	2.08	46.1	18.8	1050	55.3	3.07	44.5	119	5.29
	11.0	3.2	7.4	1400	40.6	31.9	0.79	2.20	48.1	18.5	1400	57.0	2.83	47.3	108	5.90
85	5.5	0.7	1.6	1050	35.7	25.7	0.72	2.40	43.9	14.8	1050	53.7	3.03	43.1	117	5.20
	5.5	0.7	1.6	1400	37.1	29.9	0.81	2.54	45.8	14.6	1400	55.4	2.80	45.8	107	5.80
	8.3	1.9	4.3	1050	37.1	26.4	0.71	2.26	44.8	16.4	1050	56.0	3.09	45.1	119	5.31
	8.3	1.9	4.3	1400	38.5	30.7	0.80	2.39	46.7	16.1	1400	57.8	2.86	47.9	108	5.93
	11.0	3.2	7.3	1050	37.8	26.8	0.71	2.20	45.2	17.2	1050	57.1	3.13	46.1	120	5.35
	11.0	3.2	7.3	1400	39.3	31.1	0.79	2.32	47.2	16.9	1400	58.9	2.89	49.0	109	5.97
90	5.5	0.7	1.6	1050	34.4	25.1	0.73	2.53	43.1	13.6	1050	55.8	3.08	45.0	119	5.31
	5.5	0.7	1.6	1400	35.8	29.2	0.82	2.68	45.0	13.4	1400	57.6	2.85	47.8	108	5.93
	8.3	1.8	4.2	1050	35.8	25.7	0.72	2.39	43.9	15.0	1050	58.0	3.15	46.8	121	5.39
	8.3	1.8	4.2	1400	37.2	30.0	0.81	2.52	45.8	14.7	1400	59.8	2.91	49.8	110	6.02
	11.0	3.1	7.2	1050	36.5	26.1	0.71	2.31	44.4	15.8	1050	58.9	3.19	47.6	122	5.42
	11.0	3.1	7.2	1400	38.0	30.4	0.80	2.45	46.3	15.5	1400	60.8	2.95	50.6	110	6.04
100	5.5	0.6	1.4	1050	32.2	24.2	0.75	2.84	41.9	11.3	Operation not recommended					
	5.5	0.6	1.4	1400	33.4	28.2	0.84	3.01	43.7	11.1						
	8.3	1.8	4.2	1050	33.3	24.6	0.74	2.67	42.5	12.5						
	8.3	1.8	4.2	1400	34.6	28.7	0.83	2.83	44.3	12.3						
	11.0	2.9	6.7	1050	34.0	24.9	0.73	2.59	42.8	13.1						
	11.0	2.9	6.7	1400	35.3	29.0	0.82	2.74	44.7	12.9						
110	5.5	0.6	1.4	1050	30.3	23.9	0.79	3.20	41.4	9.5						
	5.5	0.6	1.4	1400	31.5	27.8	0.88	3.39	43.1	9.3						
	8.3	1.7	3.9	1050	31.2	24.0	0.77	3.01	41.5	10.4						
	8.3	1.7	3.9	1400	32.4	27.9	0.86	3.18	43.3	10.2						
	11.0	2.9	6.7	1050	31.7	24.1	0.76	2.91	41.7	10.9						
	11.0	2.9	6.7	1400	33.0	28.0	0.85	3.08	43.5	10.7						
120	5.5	0.6	1.4	1050	28.9	23.5	0.81	3.62	41.4	8.0						
	5.5	0.6	1.4	1400	30.1	27.4	0.91	3.83	43.2	7.9						
	8.3	1.6	3.7	1050	29.7	23.9	0.80	3.40	41.4	8.7						
	8.3	1.6	3.7	1400	30.9	27.8	0.90	3.60	43.2	8.6						
	11.0	2.7	6.2	1050	30.1	24.0	0.80	3.30	41.5	9.1						
	11.0	2.7	6.2	1400	31.3	28.0	0.89	3.49	43.3	9.0						

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See Performance Data Selection Notes for operation in the shaded areas.

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Performance Data – TS H/V/D 048 (PSC Blower)

1,600 CFM Nominal (Rated) Airflow Cooling, 1,600 CFM Nominal (Rated) Airflow Heating — Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	12.0	4.8	11.1	Operation not recommended							1200	34.4	3.80	22.20	97	2.65
	12.0	4.8	11.1								1600	35.3	3.47	23.60	90	2.98
30	6.0	1.3	3.0	1200	52.0	29.3	0.56	2.14	59.3	24.3	1200	37.1	3.84	24.70	99	2.83
	6.0	1.3	3.0	1600	54.2	35.1	0.65	2.22	61.7	24.4	1600	38.0	3.51	26.20	92	3.18
	9.0	2.6	6.0	1200	52.3	29.3	0.56	2.06	59.4	25.4	1200	38.5	3.86	26.00	100	2.92
	9.0	2.6	6.0	1600	54.5	35.1	0.64	2.13	61.7	25.6	1600	39.5	3.53	27.60	93	3.28
	12.0	4.5	10.4	1200	52.5	29.4	0.56	2.03	59.4	25.9	1200	39.3	3.87	26.80	100	2.98
	12.0	4.5	10.4	1600	54.7	35.2	0.64	2.09	61.8	26.1	1600	40.4	3.54	28.40	93	3.34
40	6.0	1.2	2.8	1200	53.2	30.3	0.57	2.32	61.1	22.9	1200	41.9	3.92	29.10	102	3.14
	6.0	1.2	2.8	1600	55.4	36.3	0.66	2.40	63.5	23.1	1600	43.0	3.58	30.90	95	3.52
	9.0	2.6	6.0	1200	53.4	30.4	0.57	2.24	61.1	23.9	1200	43.8	3.95	30.90	104	3.25
	9.0	2.6	6.0	1600	55.7	36.4	0.65	2.31	63.5	24.1	1600	45.0	3.61	32.80	96	3.65
	12.0	4.4	10.2	1200	53.7	30.4	0.57	2.18	61.1	24.6	1200	44.9	3.97	31.80	105	3.31
	12.0	4.4	10.2	1600	55.9	36.4	0.65	2.26	63.6	24.8	1600	46.1	3.63	33.80	97	3.72
50	6.0	1.1	2.5	1200	52.6	30.7	0.58	2.60	61.5	20.2	1200	47.2	4.01	33.90	106	3.45
	6.0	1.1	2.5	1600	54.8	36.8	0.67	2.69	63.9	20.4	1600	48.5	3.67	36.00	98	3.87
	9.0	2.5	5.8	1200	53.5	30.9	0.58	2.44	61.8	21.9	1200	49.6	4.06	36.10	108	3.58
	9.0	2.5	5.8	1600	55.7	37.0	0.66	2.52	64.3	22.1	1600	50.9	3.71	38.30	99	4.02
	12.0	4.2	9.7	1200	53.8	30.9	0.57	2.37	61.9	22.7	1200	50.9	4.08	37.30	109	3.65
	12.0	4.2	9.7	1600	56.0	37.0	0.66	2.45	64.3	22.9	1600	52.2	3.73	39.60	100	4.10
60	6.0	1.0	2.3	1200	50.7	30.2	0.60	2.85	60.4	17.8	1200	52.8	4.12	39.00	111	3.75
	6.0	1.0	2.3	1600	52.8	36.2	0.68	2.94	62.8	17.9	1600	54.2	3.77	41.40	101	4.22
	9.0	2.4	5.5	1200	52.1	30.6	0.59	2.67	61.2	19.5	1200	55.6	4.18	41.60	113	3.90
	9.0	2.4	5.5	1600	54.3	36.6	0.68	2.76	63.7	19.7	1600	57.1	3.82	44.10	103	4.38
	12.0	4.0	9.2	1200	52.7	30.7	0.58	2.59	61.5	20.4	1200	57.2	4.21	43.00	114	3.98
	12.0	4.0	9.2	1600	54.9	36.8	0.67	2.67	64.0	20.5	1600	58.8	3.85	45.60	104	4.47
70	6.0	1.0	2.3	1200	48.3	29.5	0.61	3.13	59.0	15.4	1200	58.6	4.24	44.20	115	4.05
	6.0	1.0	2.3	1600	50.3	35.3	0.70	3.24	61.3	15.5	1600	60.2	3.88	46.90	105	4.54
	9.0	2.3	5.3	1200	50.0	30.0	0.60	2.93	60.0	17.0	1200	61.9	4.32	47.20	118	4.20
	9.0	2.3	5.3	1600	52.1	35.9	0.69	3.03	62.4	17.2	1600	63.6	3.95	50.10	107	4.72
	12.0	3.8	8.8	1200	50.8	30.2	0.59	2.84	60.5	17.9	1200	63.8	4.36	48.90	119	4.29
	12.0	3.8	8.8	1600	52.9	36.2	0.68	2.93	62.9	18.0	1600	65.5	3.99	51.90	108	4.81
80	6.0	0.9	2.1	1200	45.7	28.7	0.63	3.45	57.5	13.2	1200	64.6	4.38	49.60	120	4.32
	6.0	0.9	2.1	1600	47.6	34.4	0.72	3.57	59.8	13.3	1600	66.3	4.01	52.60	108	4.85
	9.0	2.3	5.3	1200	47.5	29.2	0.62	3.23	58.5	14.7	1200	68.4	4.47	53.00	123	4.48
	9.0	2.3	5.3	1600	49.4	35.0	0.71	3.34	60.8	14.8	1600	70.2	4.09	56.20	111	5.03
	12.0	3.6	8.3	1200	48.3	29.5	0.61	3.13	59.0	15.5	1200	70.5	4.53	54.90	124	4.56
	12.0	3.6	8.3	1600	50.3	35.3	0.70	3.23	61.4	15.6	1600	72.4	4.14	58.30	112	5.12
85	6.0	0.9	2.1	1200	44.4	28.4	0.64	3.64	56.8	12.2	1200	67.6	4.46	52.30	122	4.45
	6.0	0.9	2.1	1600	46.2	34.0	0.74	3.76	59.1	12.3	1600	69.4	4.07	55.50	110	4.99
	9.0	2.3	5.2	1200	46.1	28.8	0.63	3.40	57.7	13.5	1200	71.7	4.56	55.90	125	4.60
	9.0	2.3	5.2	1600	48.0	34.5	0.72	3.52	60.0	13.6	1600	73.6	4.17	59.30	113	5.17
	12.0	3.6	8.2	1200	47.0	29.1	0.62	3.29	58.2	14.3	1200	73.9	4.62	57.90	127	4.69
	12.0	3.6	8.2	1600	48.9	34.8	0.71	3.40	60.6	14.4	1600	75.9	4.23	61.40	114	5.26
90	6.0	0.9	2.1	1200	43.1	28.1	0.65	3.82	56.1	11.3	1200	70.6	4.53	55.00	125	4.57
	6.0	0.9	2.1	1600	44.9	33.6	0.75	3.95	58.4	11.4	1600	72.5	4.14	58.40	112	5.13
	9.0	2.2	5.1	1200	44.8	28.4	0.64	3.57	57.0	12.5	1200	74.9	4.65	58.80	128	4.72
	9.0	2.2	5.1	1600	46.6	34.1	0.73	3.69	59.2	12.6	1600	76.9	4.25	62.40	115	5.30
	12.0	3.5	8.1	1200	45.6	28.7	0.63	3.46	57.4	13.2	1200	77.3	4.72	60.90	130	4.80
	12.0	3.5	8.1	1600	47.5	34.3	0.72	3.57	59.7	13.3	1600	79.3	4.31	64.60	116	5.39
100	6.0	0.8	1.8	1200	40.8	27.8	0.68	4.24	55.3	9.6	Operation not recommended					
	6.0	0.8	1.8	1600	42.5	33.3	0.78	4.39	57.5	9.7						
	9.0	2.1	4.9	1200	42.2	27.9	0.66	3.97	55.8	10.6						
	9.0	2.1	4.9	1600	44.0	33.4	0.76	4.10	58.0	10.7						
	12.0	3.3	7.6	1200	43.0	28.1	0.65	3.83	56.1	11.2						
	12.0	3.3	7.6	1600	44.8	33.6	0.75	3.96	58.3	11.3						
110	6.0	0.8	1.8	1200	39.2	27.8	0.71	4.68	55.2	8.4						
	6.0	0.8	1.8	1600	40.8	33.3	0.82	4.84	57.4	8.4						
	9.0	2.0	4.6	1200	40.1	27.9	0.69	4.42	55.2	9.1						
	9.0	2.0	4.6	1600	41.8	33.4	0.80	4.57	57.4	9.2						
	12.0	3.2	7.4	1200	40.7	27.9	0.69	4.27	55.3	9.5						
	12.0	3.2	7.4	1600	42.4	33.5	0.79	4.41	57.5	9.6						
120	6.0	0.7	1.6	1200	38.1	28.7	0.75	5.25	56.1	7.3						
	6.0	0.7	1.6	1600	39.7	34.4	0.87	5.42	58.3	7.3						
	9.0	1.9	4.4	1200	39.2	28.8	0.74	4.97	56.2	7.9						
	9.0	1.9	4.4	1600	40.8	34.5	0.85	5.14	58.4	7.9						
	12.0	3.0	6.9	1200	39.8	28.9	0.73	4.82	56.2	8.3						
	12.0	3.0	6.9	1600	41.4	34.6	0.84	4.98	58.5	8.3						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

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Performance Data – TS H/V/D 048 (ECM Blower)

1,550 CFM Nominal (Rated) Airflow Cooling, 1,650 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	12.0	4.8	11.1	Operation not recommended							1200	32.9	3.41	21.9	95	2.82
	12.0	4.8	11.1								1650	33.9	3.15	23.2	89	3.15
30	6.0	1.3	3.0	1120	53.5	31.9	0.60	1.91	59.9	28.0	1200	35.4	3.47	24.2	97	2.99
	6.0	1.3	3.0	1550	55.6	37.1	0.67	2.02	62.5	27.5	1650	36.5	3.21	25.7	91	3.34
	9.0	2.6	6.0	1120	54.1	31.9	0.59	1.81	60.1	29.9	1200	36.8	3.51	25.4	98	3.08
	9.0	2.6	6.0	1550	56.2	37.1	0.66	1.91	62.7	29.4	1650	38.0	3.24	27.0	91	3.44
	12.0	4.5	10.4	1120	54.8	32.1	0.59	1.76	60.6	31.1	1200	37.6	3.52	26.2	99	3.13
	12.0	4.5	10.4	1550	56.9	37.4	0.66	1.86	63.2	30.5	1650	38.8	3.26	27.8	92	3.49
40	6.0	1.2	2.8	1120	54.3	32.8	0.60	2.09	61.3	26.0	1200	40.3	3.58	28.6	101	3.30
	6.0	1.2	2.8	1550	56.5	38.2	0.68	2.21	64.0	25.6	1650	41.6	3.31	30.4	93	3.68
	9.0	2.6	6.0	1120	54.8	32.8	0.60	1.97	61.4	27.9	1200	42.2	3.62	30.3	103	3.42
	9.0	2.6	6.0	1550	57.0	38.2	0.67	2.08	64.1	27.4	1650	43.6	3.34	32.2	94	3.82
	12.0	4.4	10.2	1120	55.1	32.8	0.60	1.91	61.4	28.8	1200	43.3	3.64	31.3	103	3.49
	12.0	4.4	10.2	1550	57.3	38.2	0.67	2.02	64.1	28.3	1650	44.7	3.36	33.3	95	3.89
50	6.0	1.1	2.5	1120	53.5	32.9	0.62	2.31	61.3	23.2	1200	45.8	3.69	33.5	105	3.64
	6.0	1.1	2.5	1550	55.6	38.3	0.69	2.44	63.9	22.8	1650	47.2	3.41	35.6	96	4.06
	9.0	2.5	5.8	1120	54.4	33.1	0.61	2.16	61.6	25.2	1200	48.2	3.74	35.7	107	3.78
	9.0	2.5	5.8	1550	56.5	38.5	0.68	2.28	64.3	24.8	1650	49.7	3.45	37.9	98	4.22
	12.0	4.2	9.7	1120	54.7	33.1	0.61	2.09	61.7	26.2	1200	49.5	3.76	36.9	108	3.86
	12.0	4.2	9.7	1550	56.8	38.5	0.68	2.21	64.3	25.7	1650	51.1	3.48	39.3	99	4.30
60	6.0	1.0	2.3	1120	51.7	32.4	0.63	2.55	60.3	20.2	1200	51.5	3.80	38.7	110	3.97
	6.0	1.0	2.3	1550	53.7	37.7	0.70	2.70	62.9	19.9	1650	53.1	3.52	41.1	100	4.43
	9.0	2.4	5.5	1120	53.0	32.8	0.62	2.38	61.0	22.3	1200	54.4	3.86	41.3	112	4.13
	9.0	2.4	5.5	1550	55.1	38.2	0.69	2.52	63.7	21.9	1650	56.1	3.57	43.9	101	4.60
	12.0	4.0	9.2	1120	53.6	32.9	0.61	2.30	61.3	23.3	1200	56.0	3.89	42.8	113	4.21
	12.0	4.0	9.2	1550	55.7	38.3	0.69	2.43	64.0	22.9	1650	57.7	3.60	45.4	102	4.70
70	6.0	1.0	2.3	1120	49.3	31.6	0.64	2.83	58.9	17.4	1200	57.3	3.92	44.0	114	4.28
	6.0	1.0	2.3	1550	51.3	36.7	0.72	3.00	61.5	17.1	1650	59.1	3.63	46.7	103	4.78
	9.0	2.3	5.3	1120	51.0	32.2	0.63	2.64	59.9	19.3	1200	60.6	3.99	46.9	117	4.45
	9.0	2.3	5.3	1550	53.0	37.4	0.71	2.79	62.5	19.0	1650	62.4	3.69	49.8	105	4.96
	12.0	3.8	8.8	1120	51.8	32.4	0.63	2.54	60.4	20.3	1200	62.3	4.03	48.5	118	4.53
	12.0	3.8	8.8	1550	53.8	37.7	0.70	2.69	63.0	20.0	1650	64.2	3.73	51.5	106	5.05
80	6.0	0.9	2.1	1120	46.6	30.6	0.66	3.15	57.3	14.8	1200	63.0	4.05	49.1	119	4.56
	6.0	0.9	2.1	1550	48.4	35.6	0.73	3.33	59.8	14.5	1650	65.0	3.74	52.2	106	5.09
	9.0	2.3	5.3	1120	48.4	31.3	0.65	2.93	58.4	16.5	1200	66.4	4.13	52.2	121	4.71
	9.0	2.3	5.3	1550	50.4	36.4	0.72	3.10	60.9	16.2	1650	68.5	3.82	55.4	108	5.26
	12.0	3.6	8.3	1120	49.3	31.6	0.64	2.83	58.9	17.4	1200	68.2	4.18	53.7	123	4.79
	12.0	3.6	8.3	1550	51.3	36.8	0.72	2.99	61.5	17.1	1650	70.3	3.86	57.1	109	5.34
85	6.0	0.9	2.1	1120	45.1	30.1	0.67	3.33	56.5	13.5	1200	65.7	4.12	51.5	121	4.68
	6.0	0.9	2.1	1550	46.9	35.0	0.75	3.52	59.0	13.3	1650	67.8	3.80	54.7	108	5.22
	9.0	2.3	5.2	1120	47.0	30.7	0.65	3.10	57.6	15.2	1200	69.1	4.20	54.5	123	4.81
	9.0	2.3	5.2	1550	48.9	35.8	0.73	3.28	60.1	14.9	1650	71.2	3.89	57.9	110	5.37
	12.0	3.6	8.2	1120	48.0	31.1	0.65	2.99	58.1	16.0	1200	70.8	4.25	56.0	125	4.88
	12.0	3.6	8.2	1550	49.8	36.2	0.73	3.17	60.6	15.7	1650	73.0	3.93	59.5	111	5.44
90	6.0	0.9	2.1	1120	43.7	29.5	0.68	3.51	55.7	12.4	1200	68.4	4.18	53.9	123	4.79
	6.0	0.9	2.1	1550	45.4	34.4	0.76	3.72	58.1	12.2	1650	70.5	3.86	57.3	110	5.35
	9.0	2.2	5.1	1120	45.6	30.2	0.66	3.27	56.8	13.9	1200	71.7	4.28	56.8	125	4.91
	9.0	2.2	5.1	1550	47.4	35.2	0.74	3.46	59.2	13.7	1650	73.9	3.95	60.4	111	5.48
	12.0	3.5	8.1	1120	46.6	30.6	0.66	3.16	57.3	14.8	1200	73.3	4.33	58.2	127	4.96
	12.0	3.5	8.1	1550	48.4	35.6	0.74	3.34	59.8	14.5	1650	75.6	4.00	61.9	112	5.54
100	6.0	0.8	1.8	1120	40.8	28.5	0.70	3.92	54.3	10.4	Operation not recommended					
	6.0	0.8	1.8	1550	42.4	33.2	0.78	4.15	56.6	10.2						
	9.0	2.1	4.9	1120	42.6	29.2	0.68	3.66	55.2	11.7						
	9.0	2.1	4.9	1550	44.3	33.9	0.77	3.87	57.5	11.5						
	12.0	3.3	7.6	1120	43.6	29.5	0.68	3.53	55.7	12.3						
	12.0	3.3	7.6	1550	45.3	34.3	0.76	3.73	58.1	12.1						
110	6.0	0.8	1.8	1120	38.0	27.7	0.73	4.39	53.1	8.6						
	6.0	0.8	1.8	1550	39.5	32.2	0.82	4.65	55.4	8.5						
	9.0	2.0	4.6	1120	39.7	28.2	0.71	4.10	53.8	9.7						
	9.0	2.0	4.6	1550	41.3	32.8	0.80	4.33	56.1	9.5						
	12.0	3.2	7.4	1120	40.6	28.5	0.70	3.95	54.2	10.3						
	12.0	3.2	7.4	1550	42.2	33.1	0.79	4.18	56.5	10.1						
120	6.0	0.7	1.6	1120	35.5	27.1	0.76	4.93	52.5	7.2						
	6.0	0.7	1.6	1550	36.9	31.6	0.85	5.21	54.8	7.1						
	9.0	1.9	4.4	1120	37.0	27.4	0.74	4.59	52.8	8.0						
	9.0	1.9	4.4	1550	38.4	31.9	0.83	4.86	55.1	7.9						
	12.0	3.0	6.9	1120	37.8	27.6	0.73	4.44	53.0	8.5						
	12.0	3.0	6.9	1550	39.3	32.1	0.82	4.69	55.3	8.4						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at 1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at **climatemaster.com**.

Performance Data – TS H/V/D 060 (PSC Blower)

1,950 CFM Nominal (Rated) Airflow Cooling, 1,950 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	15.0	5.0	11.6	Operation not recommended							1465	40.8	4.43	26.6	96	2.70
	15.0	5.0	11.6								1950	41.9	4.05	28.2	90	3.03
30	7.5	0.6	1.4	1465	61.8	36.2	0.59	2.64	70.8	23.4	1465	44.1	4.50	29.6	98	2.88
	7.5	0.6	1.4	1950	64.3	43.4	0.67	2.73	73.6	23.6	1950	45.3	4.11	31.4	92	3.23
	11.3	2.3	5.3	1465	63.0	36.5	0.58	2.63	72.0	23.9	1465	45.8	4.53	31.1	99	2.96
	11.3	2.3	5.3	1950	65.6	43.7	0.67	2.72	74.9	24.1	1950	47.0	4.14	33.0	92	3.33
	15.0	4.8	11.1	1465	64.9	37.4	0.58	2.60	73.8	24.9	1465	46.7	4.55	32.0	100	3.01
	15.0	4.8	11.1	1950	67.6	44.8	0.66	2.69	76.7	25.1	1950	48.0	4.16	33.9	93	3.38
40	7.5	0.5	1.2	1465	64.9	38.6	0.59	2.86	74.6	22.7	1465	50.0	4.61	34.9	102	3.18
	7.5	0.5	1.2	1950	67.5	46.2	0.68	2.96	77.6	22.9	1950	51.3	4.22	37.0	94	3.57
	11.3	2.2	5.1	1465	65.4	38.7	0.59	2.76	74.9	23.7	1465	52.1	4.65	36.8	103	3.28
	11.3	2.2	5.1	1950	68.2	46.3	0.68	2.85	77.8	23.9	1950	53.5	4.25	39.1	95	3.69
	15.0	4.5	10.4	1465	66.0	38.8	0.59	2.72	75.3	24.3	1465	53.3	4.67	37.9	104	3.34
	15.0	4.5	10.4	1950	68.8	46.4	0.67	2.81	78.3	24.5	1950	54.7	4.27	40.2	96	3.75
50	7.5	0.4	0.9	1465	65.4	39.8	0.61	3.15	76.2	20.8	1465	56.1	4.73	40.5	105	3.48
	7.5	0.4	0.9	1950	68.1	47.6	0.70	3.26	79.2	20.9	1950	57.6	4.32	43.0	97	3.91
	11.3	2.1	4.9	1465	66.1	39.8	0.60	2.97	76.2	22.2	1465	58.7	4.77	42.9	107	3.60
	11.3	2.1	4.9	1950	68.8	47.6	0.69	3.07	79.2	22.4	1950	60.3	4.37	45.5	99	4.05
	15.0	4.3	9.9	1465	66.4	39.8	0.60	2.91	76.3	22.9	1465	60.1	4.80	44.1	108	3.67
	15.0	4.3	9.9	1950	69.2	47.6	0.69	3.00	79.4	23.0	1950	61.7	4.39	46.8	99	4.12
60	7.5	0.3	0.7	1465	64.0	39.9	0.62	3.50	76.0	18.3	1465	62.5	4.84	46.3	109	3.78
	7.5	0.3	0.7	1950	66.7	47.8	0.72	3.62	79.0	18.4	1950	64.2	4.43	49.1	100	4.24
	11.3	2.1	4.9	1465	65.3	40.1	0.61	3.26	76.4	20.0	1465	65.5	4.90	49.0	111	3.92
	11.3	2.1	4.9	1950	68.0	48.0	0.71	3.37	79.4	20.2	1950	67.2	4.48	52.0	102	4.40
	15.0	4.1	9.5	1465	65.7	40.1	0.61	3.17	76.5	20.7	1465	67.1	4.93	50.5	112	3.99
	15.0	4.1	9.5	1950	68.4	48.0	0.70	3.27	79.5	20.9	1950	68.9	4.51	53.5	103	4.48
70	7.5	0.3	0.7	1465	61.6	39.2	0.64	3.84	74.7	16.0	1465	68.9	4.97	52.0	114	4.06
	7.5	0.3	0.7	1950	64.2	46.9	0.73	3.97	77.7	16.2	1950	70.7	4.54	55.2	104	4.56
	11.3	2.0	4.6	1465	63.4	39.7	0.63	3.61	75.7	17.6	1465	72.2	5.03	55.0	116	4.20
	11.3	2.0	4.6	1950	66.0	47.6	0.72	3.73	78.7	17.7	1950	74.1	4.60	58.4	105	4.72
	15.0	3.9	9.0	1465	64.1	39.9	0.62	3.49	76.1	18.4	1465	73.9	5.07	56.6	117	4.28
	15.0	3.9	9.0	1950	66.8	47.8	0.72	3.61	79.1	18.5	1950	75.9	4.63	60.1	106	4.80
80	7.5	0.2	0.5	1465	58.6	38.1	0.65	4.23	73.1	13.9	1465	75.1	5.09	57.7	117	4.32
	7.5	0.2	0.5	1950	61.1	45.6	0.75	4.37	76.0	14.0	1950	77.1	4.65	61.2	107	4.85
	11.3	1.9	4.4	1465	60.7	38.9	0.64	3.96	74.2	15.3	1465	78.6	5.16	60.8	120	4.46
	11.3	1.9	4.4	1950	63.2	46.6	0.74	4.09	77.2	15.4	1950	80.7	4.72	64.5	108	5.01
	15.0	3.6	8.3	1465	61.7	39.2	0.64	3.83	74.8	16.1	1465	80.4	5.21	62.5	121	4.53
	15.0	3.6	8.3	1950	64.3	47.0	0.73	3.96	77.8	16.2	1950	82.6	4.76	66.3	109	5.08
85	7.5	0.2	0.5	1465	56.9	37.4	0.66	4.44	72.1	12.8	1465	78.1	5.15	60.4	119	4.44
	7.5	0.2	0.5	1950	59.3	44.8	0.76	4.59	75.0	12.9	1950	80.1	4.71	64.0	108	4.98
	11.3	1.9	4.3	1465	59.1	38.3	0.65	4.16	73.3	14.2	1465	81.6	5.23	63.5	122	4.57
	11.3	1.9	4.3	1950	61.6	45.8	0.74	4.30	76.3	14.3	1950	83.7	4.79	67.4	110	5.13
	15.0	3.6	8.2	1465	60.2	38.7	0.64	4.03	73.9	14.9	1465	83.4	5.28	65.1	123	4.63
	15.0	3.6	8.2	1950	62.7	46.3	0.74	4.17	76.9	15.0	1950	85.6	4.83	69.1	111	5.20
90	7.5	0.2	0.5	1465	55.2	36.8	0.67	4.66	71.2	11.9	1465	81.0	5.22	63.0	121	4.55
	7.5	0.2	0.5	1950	57.5	44.0	0.77	4.82	74.0	11.9	1950	83.2	4.77	66.9	109	5.11
	11.3	1.8	4.2	1465	57.5	37.7	0.66	4.37	72.4	13.2	1465	84.5	5.30	66.2	123	4.67
	11.3	1.8	4.2	1950	59.9	45.1	0.75	4.51	75.3	13.3	1950	86.8	4.85	70.2	111	5.25
	15.0	3.5	8.1	1465	58.6	38.1	0.65	4.23	73.1	13.9	1465	86.3	5.35	67.7	125	4.73
	15.0	3.5	8.1	1950	61.1	45.6	0.75	4.37	76.0	14.0	1950	88.6	4.89	71.9	112	5.31
100	7.5	0.1	0.2	1465	51.7	35.3	0.68	5.15	69.3	10.0	Operation not recommended					
	7.5	0.1	0.2	1950	53.9	42.3	0.78	5.32	72.1	10.1						
	11.3	1.8	4.2	1465	54.0	36.3	0.67	4.83	70.5	11.2						
	11.3	1.8	4.2	1950	56.2	43.4	0.77	4.99	73.3	11.3						
	15.0	3.3	7.6	1465	55.2	36.7	0.67	4.67	71.1	11.8						
	15.0	3.3	7.6	1950	57.5	44.0	0.77	4.83	74.0	11.9						
110	7.5	0.1	0.2	1465	48.2	33.8	0.70	5.70	67.7	8.5						
	7.5	0.1	0.2	1950	50.2	40.5	0.81	5.89	70.4	8.5						
	11.3	1.7	3.9	1465	50.4	34.8	0.69	5.35	68.7	9.4						
	11.3	1.7	3.9	1950	52.5	41.6	0.79	5.53	71.4	9.5						
	15.0	3.1	7.2	1465	51.5	35.2	0.68	5.18	69.2	10.0						
	15.0	3.1	7.2	1950	53.7	42.2	0.79	5.35	72.0	10.0						
120	7.5	0.0	0.0	1465	45.0	32.5	0.72	6.32	66.6	7.1						
	7.5	0.0	0.0	1950	46.9	39.0	0.83	6.53	69.2	7.2						
	11.3	1.7	3.9	1465	46.9	33.3	0.71	5.93	67.2	7.9						
	11.3	1.7	3.9	1950	48.9	39.9	0.82	6.13	69.9	8.0						
	15.0	2.9	6.7	1465	48.0	33.7	0.70	5.74	67.6	8.4						
	15.0	2.9	6.7	1950	50.0	40.4	0.81	5.94	70.3	8.4						

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.

AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Table does not reflect fan or pump power corrections for AHRI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.

Operation below 60°F EWT requires optional insulated water/refrigerant circuit.

See performance correction tables for operating conditions other than those listed above.

See Performance Data Selection Notes for operation in the shaded areas.

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at 1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at **climatemaster.com**.

Performance Data – TS H/V/D 060 (ECM Blower)

1,825 CFM Nominal (Rated) Airflow Cooling, 2,050 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	15.0	5.0	11.6	Operation not recommended							1470	39.6	4.02	26.6	95	2.89
	15.0	5.0	11.6								2050	40.9	3.72	28.3	88	3.22
30	7.5	0.6	1.4	1320	62.0	37.7	0.61	2.30	69.7	26.9	1470	42.9	4.09	29.5	97	3.07
	7.5	0.6	1.4	1825	64.4	43.9	0.68	2.44	72.7	26.5	2050	44.2	3.78	31.4	90	3.42
	11.3	2.3	5.3	1320	63.4	38.5	0.61	2.32	71.2	27.4	1470	44.5	4.13	31.0	98	3.16
	11.3	2.3	5.3	1825	65.9	44.8	0.68	2.45	74.2	26.9	2050	45.9	3.82	33.0	91	3.52
	15.0	4.8	11.1	1320	65.6	39.8	0.61	2.27	73.2	28.9	1470	45.4	4.15	31.8	99	3.21
	15.0	4.8	11.1	1825	68.2	46.3	0.68	2.40	76.4	28.4	2050	46.8	3.83	33.8	91	3.58
40	7.5	0.5	1.2	1320	65.6	40.3	0.61	2.57	74.2	25.5	1470	48.6	4.21	34.7	101	3.38
	7.5	0.5	1.2	1825	68.2	46.9	0.69	2.72	77.4	25.1	2050	50.1	3.89	36.9	93	3.77
	11.3	2.2	5.1	1320	66.3	40.5	0.61	2.49	74.7	26.6	1470	50.7	4.25	36.6	102	3.49
	11.3	2.2	5.1	1825	69.0	47.1	0.68	2.64	77.9	26.1	2050	52.2	3.93	38.9	94	3.90
	15.0	4.5	10.4	1320	67.1	40.9	0.61	2.45	75.3	27.4	1470	51.8	4.27	37.7	103	3.55
	15.0	4.5	10.4	1825	69.8	47.6	0.68	2.59	78.6	26.9	2050	53.4	3.95	40.0	94	3.96
50	7.5	0.4	0.9	1320	66.5	41.3	0.62	2.84	76.0	23.4	1470	54.7	4.33	40.3	104	3.70
	7.5	0.4	0.9	1825	69.1	48.1	0.70	3.00	79.3	23.0	2050	56.4	4.00	42.8	95	4.13
	11.3	2.1	4.9	1320	67.2	41.4	0.62	2.69	76.2	25.0	1470	57.2	4.38	42.6	106	3.83
	11.3	2.1	4.9	1825	69.9	48.2	0.69	2.85	79.5	24.5	2050	59.0	4.04	45.3	97	4.28
	15.0	4.3	9.9	1320	68.1	41.9	0.61	2.62	76.9	26.0	1470	58.7	4.40	43.9	107	3.90
	15.0	4.3	9.9	1825	70.8	48.7	0.69	2.77	80.2	25.5	2050	60.5	4.07	46.6	97	4.36
60	7.5	0.3	0.7	1320	65.3	41.3	0.63	3.11	75.8	21.0	1470	61.0	4.45	46.0	108	4.02
	7.5	0.3	0.7	1825	67.9	48.0	0.71	3.29	79.1	20.6	2050	62.9	4.11	48.9	98	4.49
	11.3	2.1	4.9	1320	66.5	41.6	0.62	2.93	76.4	22.7	1470	64.0	4.50	48.7	110	4.16
	11.3	2.1	4.9	1825	69.1	48.4	0.70	3.09	79.7	22.3	2050	66.0	4.16	51.8	100	4.65
	15.0	4.1	9.5	1320	66.9	41.6	0.62	2.84	76.5	23.6	1470	65.6	4.54	50.2	111	4.24
	15.0	4.1	9.5	1825	69.6	48.4	0.70	3.00	79.8	23.2	2050	67.6	4.19	53.3	101	4.73
70	7.5	0.3	0.7	1320	63.4	40.7	0.64	3.35	74.7	18.9	1470	66.1	4.55	50.7	112	4.26
	7.5	0.3	0.7	1825	65.9	47.4	0.72	3.54	77.9	18.6	2050	68.2	4.20	53.8	101	4.76
	11.3	2.0	4.6	1320	64.6	41.1	0.64	3.20	75.4	20.2	1470	70.7	4.64	54.8	115	4.47
	11.3	2.0	4.6	1825	67.2	47.8	0.71	3.38	78.7	19.9	2050	72.9	4.28	58.2	103	4.98
	15.0	3.9	9.0	1320	65.4	41.3	0.63	3.10	75.9	21.1	1470	72.4	4.67	56.4	116	4.54
	15.0	3.9	9.0	1825	68.0	48.1	0.71	3.28	79.1	20.8	2050	74.7	4.32	59.9	104	5.07
80	7.5	0.2	0.5	1320	59.7	39.5	0.66	3.76	72.5	15.9	1470	73.6	4.70	57.4	116	4.59
	7.5	0.2	0.5	1825	62.1	46.0	0.74	3.98	75.6	15.6	2050	75.9	4.34	61.0	104	5.12
	11.3	1.9	4.4	1320	61.9	40.2	0.65	3.52	73.8	17.6	1470	77.0	4.77	60.5	119	4.73
	11.3	1.9	4.4	1825	64.3	46.8	0.73	3.72	77.0	17.3	2050	79.4	4.41	64.3	106	5.28
	15.0	3.6	8.3	1320	62.9	40.6	0.64	3.40	74.4	18.5	1470	78.8	4.81	62.1	120	4.80
	15.0	3.6	8.3	1825	65.4	47.2	0.72	3.60	77.6	18.2	2050	81.3	4.45	66.0	107	5.36
85	7.5	0.2	0.5	1320	57.9	38.9	0.67	3.96	71.4	14.6	1470	76.5	4.76	60.1	118	4.71
	7.5	0.2	0.5	1825	60.2	45.3	0.75	4.19	74.5	14.4	2050	78.9	4.40	63.8	106	5.25
	11.3	1.9	4.3	1320	60.2	39.7	0.66	3.70	72.8	16.3	1470	79.9	4.84	63.1	120	4.84
	11.3	1.9	4.3	1825	62.6	46.2	0.74	3.92	75.9	16.0	2050	82.4	4.47	67.1	107	5.40
	15.0	3.6	8.2	1320	61.3	40.0	0.65	3.58	73.5	17.1	1470	81.7	4.89	64.7	121	4.90
	15.0	3.6	8.2	1825	63.7	46.6	0.73	3.79	76.6	16.8	2050	84.2	4.51	68.7	108	5.47
90	7.5	0.2	0.5	1320	56.2	38.3	0.68	4.17	70.4	13.5	1470	79.4	4.83	62.7	120	4.82
	7.5	0.2	0.5	1825	58.4	44.5	0.76	4.41	73.4	13.2	2050	81.9	4.46	66.6	107	5.38
	11.3	1.8	4.2	1320	58.5	39.1	0.67	3.89	71.8	15.0	1470	82.8	4.91	65.7	122	4.94
	11.3	1.8	4.2	1825	60.8	45.5	0.75	4.12	74.9	14.8	2050	85.4	4.54	69.8	109	5.51
	15.0	3.5	8.1	1320	59.7	39.5	0.66	3.76	72.5	15.9	1470	84.5	4.96	67.2	123	5.00
	15.0	3.5	8.1	1825	62.1	46.0	0.74	3.98	75.6	15.6	2050	87.1	4.58	71.4	109	5.57
100	7.5	0.1	0.2	1320	52.4	37.0	0.71	4.64	68.3	11.3	Operation not recommended					
	7.5	0.1	0.2	1825	54.5	43.1	0.79	4.91	71.3	11.1						
	11.3	1.8	4.2	1320	54.8	37.8	0.69	4.33	69.6	12.7						
	11.3	1.8	4.2	1825	57.0	44.0	0.77	4.58	72.6	12.4						
	15.0	3.3	7.6	1320	56.0	38.2	0.68	4.18	70.3	13.4						
	15.0	3.3	7.6	1825	58.3	44.5	0.76	4.42	73.4	13.2						
110	7.5	0.1	0.2	1320	48.6	35.8	0.74	5.20	66.5	9.3						
	7.5	0.1	0.2	1825	50.5	41.6	0.82	5.50	69.4	9.2						
	11.3	1.7	3.9	1320	50.9	36.5	0.72	4.85	67.6	10.5						
	11.3	1.7	3.9	1825	53.0	42.5	0.80	5.13	70.5	10.3						
	15.0	3.1	7.2	1320	52.2	36.9	0.71	4.68	68.2	11.2						
	15.0	3.1	7.2	1825	54.2	43.0	0.79	4.95	71.1	11.0						
120	7.5	0.0	0.0	1320	45.1	34.8	0.77	5.85	65.3	7.7						
	7.5	0.0	0.0	1825	46.9	40.5	0.86	6.19	68.1	7.6						
	11.3	1.7	3.9	1320	47.2	35.4	0.75	5.45	65.9	8.7						
	11.3	1.7	3.9	1825	49.1	41.1	0.84	5.76	68.8	8.5						
	15.0	2.9	6.7	1320	48.3	35.7	0.74	5.25	66.4	9.2						
	15.0	2.9	6.7	1825	50.2	41.5	0.83	5.56	69.2	9.0						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at 1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at **climatemaster.com**.

Performance Data – TS H/V/D 070 (PSC Blower)

2,100 CFM Nominal (Rated) Airflow Cooling, 2,100 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	16.5	9.1	21.0	Operation not recommended							1575	47.0	5.12	30.6	98	2.69
	16.5	9.1	21.0								2100	48.3	4.68	32.5	91	3.02
30	8.3	2.4	5.5	1575	70.1	40.6	0.58	3.14	80.8	22.3	1575	50.7	5.21	33.9	100	2.85
	8.3	2.4	5.5	2100	73.0	48.7	0.67	3.24	84.0	22.5	2100	52.1	4.77	36.0	93	3.20
	12.4	5.2	12.0	1575	71.0	40.9	0.58	3.01	81.2	23.6	1575	52.8	5.26	35.8	101	2.94
	12.4	5.2	12.0	2100	73.9	49.0	0.66	3.11	84.5	23.7	2100	54.2	4.81	37.9	94	3.30
	16.5	8.0	18.5	1575	71.5	41.1	0.57	2.96	81.6	24.2	1575	53.9	5.28	36.8	102	2.99
	16.5	8.0	18.5	2100	74.5	49.2	0.66	3.05	84.9	24.4	2100	55.4	4.83	39.0	94	3.36
40	8.3	2.2	5.1	1575	75.2	44.0	0.59	3.37	86.7	22.3	1575	57.6	5.36	40.1	104	3.15
	8.3	2.2	5.1	2100	78.3	52.7	0.67	3.48	90.2	22.5	2100	59.2	4.91	42.6	96	3.53
	12.4	4.9	11.3	1575	75.7	44.1	0.58	3.23	86.7	23.5	1575	60.4	5.42	42.6	105	3.26
	12.4	4.9	11.3	2100	78.9	52.9	0.67	3.33	90.2	23.7	2100	62.0	4.96	45.2	97	3.66
	16.5	7.5	17.3	1575	76.0	44.2	0.58	3.15	86.7	24.1	1575	61.9	5.46	44.0	106	3.33
	16.5	7.5	17.3	2100	79.2	52.9	0.67	3.26	90.2	24.3	2100	63.6	4.99	46.7	98	3.74
50	8.3	2.0	4.6	1575	76.2	45.4	0.60	3.72	88.9	20.5	1575	65.2	5.52	47.0	108	3.46
	8.3	2.0	4.6	2100	79.4	54.4	0.68	3.85	92.5	20.6	2100	67.0	5.05	49.9	100	3.89
	12.4	4.5	10.4	1575	77.0	45.4	0.59	3.50	89.0	22.0	1575	68.7	5.60	50.1	110	3.60
	12.4	4.5	10.4	2100	80.2	54.4	0.68	3.62	92.5	22.2	2100	70.5	5.12	53.2	101	4.04
	16.5	7.0	16.2	1575	77.4	45.5	0.59	3.40	89.0	22.8	1575	70.6	5.64	51.8	112	3.67
	16.5	7.0	16.2	2100	80.6	54.5	0.68	3.51	92.5	22.9	2100	72.5	5.15	55.0	102	4.12
60	8.3	1.7	3.9	1575	73.6	44.9	0.61	4.09	87.5	18.0	1575	73.3	5.69	54.2	113	3.77
	8.3	1.7	3.9	2100	76.6	53.8	0.70	4.22	91.0	18.1	2100	75.2	5.21	57.5	103	4.24
	12.4	4.0	9.2	1575	75.7	45.5	0.60	3.82	88.7	19.8	1575	77.4	5.78	57.9	115	3.92
	12.4	4.0	9.2	2100	78.8	54.5	0.69	3.95	92.2	20.0	2100	79.4	5.29	61.5	105	4.40
	16.5	6.4	14.8	1575	76.4	45.7	0.60	3.70	89.1	20.7	1575	79.7	5.83	60.0	117	4.00
	16.5	6.4	14.8	2100	79.6	54.7	0.69	3.82	92.6	20.8	2100	81.8	5.33	63.6	106	4.50
70	8.3	1.7	3.9	1575	69.9	43.6	0.62	4.50	85.3	15.5	1575	81.5	5.87	61.6	118	4.07
	8.3	1.7	3.9	2100	72.8	52.3	0.72	4.65	88.7	15.7	2100	83.6	5.37	65.3	107	4.57
	12.4	4.0	9.2	1575	72.6	44.6	0.61	4.19	87.0	17.3	1575	86.1	5.98	65.8	121	4.22
	12.4	4.0	9.2	2100	75.7	53.4	0.71	4.34	90.4	17.5	2100	88.4	5.47	69.8	109	4.74
	16.5	6.3	14.6	1575	73.9	45.0	0.61	4.05	87.7	18.2	1575	88.7	6.04	68.0	122	4.30
	16.5	6.3	14.6	2100	76.9	53.9	0.70	4.19	91.2	18.4	2100	91.0	5.52	72.2	110	4.83
80	8.3	1.6	3.7	1575	65.7	42.0	0.64	4.97	82.7	13.2	1575	89.6	6.06	68.9	123	4.33
	8.3	1.6	3.7	2100	68.4	50.3	0.73	5.14	86.0	13.3	2100	92.0	5.54	73.1	111	4.87
	12.4	3.8	8.8	1575	68.7	43.2	0.63	4.63	84.5	14.8	1575	94.6	6.19	73.3	126	4.48
	12.4	3.8	8.8	2100	71.6	51.7	0.72	4.79	87.9	15.0	2100	97.2	5.66	77.8	113	5.03
	16.5	6.1	14.1	1575	70.2	43.7	0.62	4.47	85.4	15.7	1575	97.3	6.26	75.7	127	4.56
	16.5	6.1	14.1	2100	73.1	52.4	0.72	4.62	88.8	15.8	2100	99.9	5.72	80.3	114	5.12
85	8.3	1.6	3.7	1575	63.5	41.1	0.65	5.24	81.4	12.1	1575	93.5	6.16	72.3	125	4.45
	8.3	1.6	3.7	2100	66.2	49.2	0.74	5.42	84.7	12.2	2100	96.0	5.63	76.8	112	4.99
	12.4	3.8	8.7	1575	66.5	42.3	0.64	4.88	83.2	13.6	1575	98.6	6.30	76.8	128	4.59
	12.4	3.8	8.7	2100	69.3	50.6	0.73	5.05	86.5	13.7	2100	101.2	5.76	81.5	115	5.15
	16.5	6.0	13.9	1575	68.0	42.9	0.63	4.71	84.1	14.4	1575	101.3	6.38	79.2	130	4.65
	16.5	6.0	13.9	2100	70.9	51.4	0.72	4.87	87.5	14.5	2100	104.0	5.83	84.0	116	5.22
90	8.3	1.6	3.7	1575	61.3	40.2	0.65	5.52	80.2	11.1	1575	97.4	6.26	75.8	127	4.56
	8.3	1.6	3.7	2100	63.9	48.1	0.75	5.70	83.4	11.2	2100	100.0	5.73	80.4	114	5.12
	12.4	3.7	8.5	1575	64.3	41.4	0.64	5.14	81.9	12.5	1575	102.6	6.42	80.3	130	4.69
	12.4	3.7	8.5	2100	67.0	49.6	0.74	5.31	85.1	12.6	2100	105.3	5.87	85.2	116	5.26
	16.5	5.9	13.6	1575	65.9	42.0	0.64	4.95	82.8	13.3	1575	105.2	6.50	82.6	132	4.74
	16.5	5.9	13.6	2100	68.6	50.3	0.73	5.12	86.1	13.4	2100	108.0	5.94	87.7	118	5.33
100	8.3	1.5	3.5	1575	57.1	38.4	0.67	6.15	78.1	9.3	Operation not recommended					
	8.3	1.5	3.5	2100	59.5	46.0	0.77	6.36	81.3	9.4						
	12.4	3.5	8.1	1575	59.9	39.5	0.66	5.72	79.4	10.5						
	12.4	3.5	8.1	2100	62.3	47.4	0.76	5.91	82.6	10.5						
	16.5	5.6	12.9	1575	61.3	40.2	0.65	5.52	80.2	11.1						
	16.5	5.6	12.9	2100	63.9	48.1	0.75	5.70	83.4	11.2						
110	8.3	1.4	3.2	1575	53.5	37.1	0.69	6.89	77.1	7.8						
	8.3	1.4	3.2	2100	55.8	44.4	0.80	7.12	80.2	7.8						
	12.4	3.3	7.6	1575	55.8	37.9	0.68	6.40	77.6	8.7						
	12.4	3.3	7.6	2100	58.1	45.4	0.78	6.61	80.7	8.8						
	16.5	5.3	12.2	1575	57.0	38.4	0.67	6.17	78.1	9.2						
	16.5	5.3	12.2	2100	59.4	46.0	0.77	6.38	81.2	9.3						
120	8.3	1.3	3.0	1575	51.1	36.5	0.71	7.75	77.6	6.6						
	8.3	1.3	3.0	2100	53.2	43.7	0.82	8.01	80.7	6.6						
	12.4	3.2	7.4	1575	52.5	36.7	0.70	7.18	77.0	7.3						
	12.4	3.2	7.4	2100	54.7	44.0	0.80	7.42	80.1	7.4						
	16.5	5.1	11.8	1575	53.4	37.0	0.69	6.92	77.1	7.7						
	16.5	5.1	11.8	2100	55.6	44.3	0.80	7.15	80.1	7.8						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

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Performance Data – TS H/V/D 070 (ECM Blower)

1,950 CFM Nominal (Rated) Airflow Cooling, 2,100 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	16.5	9.1	21.0	Operation not recommended							1520	46.2	4.80	30.7	98	2.82
	16.5	9.1	21.0								2100	47.6	4.44	32.6	91	3.14
30	8.3	2.4	5.5	1450	73.1	42.8	0.59	2.74	82.3	26.7	1520	49.9	4.89	34.0	100	2.99
	8.3	2.4	5.5	1950	76.0	49.8	0.66	2.90	85.8	26.2	2100	51.4	4.52	36.1	93	3.33
	12.4	5.2	12.0	1450	73.5	42.9	0.58	2.65	82.3	27.7	1520	52.0	4.94	35.9	102	3.08
	12.4	5.2	12.0	1950	76.4	49.9	0.65	2.80	85.9	27.2	2100	53.6	4.57	38.1	94	3.44
	16.5	8.0	18.5	1450	73.8	43.0	0.58	2.59	82.4	28.5	1520	53.1	4.97	36.9	102	3.13
	16.5	8.0	18.5	1950	76.7	50.0	0.65	2.74	86.0	28.0	2100	54.8	4.59	39.2	94	3.50
40	8.3	2.2	5.1	1450	77.1	45.3	0.59	2.94	87.0	26.3	1520	56.8	5.05	40.2	105	3.30
	8.3	2.2	5.1	1950	80.2	52.7	0.66	3.11	90.7	25.8	2100	58.6	4.67	42.8	96	3.68
	12.4	4.9	11.3	1450	77.4	45.3	0.59	2.87	87.0	27.0	1520	59.6	5.11	42.7	106	3.42
	12.4	4.9	11.3	1950	80.5	52.7	0.65	3.03	90.7	26.5	2100	61.4	4.72	45.4	97	3.81
	16.5	7.5	17.3	1450	77.6	45.3	0.58	2.80	87.0	27.7	1520	61.1	5.14	44.1	107	3.48
	16.5	7.5	17.3	1950	80.7	52.7	0.65	2.97	90.7	27.2	2100	63.0	4.75	46.9	98	3.89
50	8.3	2.0	4.6	1450	77.2	45.8	0.59	3.37	88.5	22.9	1520	64.4	5.21	47.1	109	3.62
	8.3	2.0	4.6	1950	80.2	53.3	0.66	3.56	92.3	22.5	2100	66.4	4.82	50.0	99	4.04
	12.4	4.5	10.4	1450	78.2	45.9	0.59	3.14	88.7	24.9	1520	67.8	5.29	50.2	111	3.76
	12.4	4.5	10.4	1950	81.3	53.5	0.66	3.32	92.5	24.5	2100	69.9	4.88	53.3	101	4.20
	16.5	7.0	16.2	1450	78.6	46.1	0.59	3.04	88.8	25.8	1520	69.8	5.33	51.9	112	3.84
	16.5	7.0	16.2	1950	81.7	53.6	0.66	3.22	92.6	25.4	2100	71.9	4.92	55.2	102	4.28
60	8.3	1.7	3.9	1450	74.4	45.1	0.61	3.71	86.9	20.1	1520	72.4	5.38	54.3	114	3.94
	8.3	1.7	3.9	1950	77.3	52.5	0.68	3.92	90.7	19.7	2100	74.6	4.97	57.7	103	4.40
	12.4	4.0	9.2	1450	76.6	45.7	0.60	3.45	88.2	22.2	1520	76.4	5.47	57.9	117	4.09
	12.4	4.0	9.2	1950	79.6	53.1	0.67	3.65	92.0	21.8	2100	78.8	5.06	61.6	105	4.57
	16.5	6.4	14.8	1450	77.4	45.9	0.59	3.33	88.6	23.2	1520	78.7	5.52	60.0	118	4.18
	16.5	6.4	14.8	1950	80.5	53.4	0.66	3.52	92.4	22.8	2100	81.1	5.10	63.7	106	4.66
70	8.3	1.7	3.9	1450	70.7	44.0	0.62	4.10	84.7	17.2	1520	80.4	5.56	61.5	119	4.24
	8.3	1.7	3.9	1950	73.5	51.2	0.70	4.34	88.3	16.9	2100	82.9	5.14	65.4	107	4.73
	12.4	4.0	9.2	1450	73.5	44.8	0.61	3.81	86.4	19.3	1520	85.0	5.67	65.7	122	4.39
	12.4	4.0	9.2	1950	76.4	52.1	0.68	4.03	90.1	18.9	2100	87.7	5.24	69.8	109	4.90
	16.5	6.3	14.6	1450	74.7	45.2	0.60	3.68	87.1	20.3	1520	87.5	5.73	67.9	123	4.47
	16.5	6.3	14.6	1950	77.7	52.6	0.68	3.89	90.9	20.0	2100	90.2	5.30	72.1	110	4.99
80	8.3	1.6	3.7	1450	66.6	42.5	0.64	4.56	82.1	14.6	1520	88.4	5.76	68.7	124	4.50
	8.3	1.6	3.7	1950	69.2	49.5	0.71	4.82	85.7	14.3	2100	91.2	5.32	73.0	110	5.02
	12.4	3.8	8.8	1450	69.5	43.6	0.63	4.23	83.9	16.4	1520	93.3	5.89	73.0	127	4.65
	12.4	3.8	8.8	1950	72.3	50.7	0.70	4.48	87.5	16.1	2100	96.2	5.44	77.6	112	5.18
	16.5	6.1	14.1	1450	71.0	44.0	0.62	4.08	84.8	17.4	1520	96.0	5.97	75.3	128	4.71
	16.5	6.1	14.1	1950	73.8	51.2	0.69	4.31	88.5	17.1	2100	98.9	5.51	80.1	114	5.26
85	8.3	1.6	3.7	1450	64.4	41.7	0.65	4.82	80.9	13.4	1520	92.3	5.86	72.1	126	4.61
	8.3	1.6	3.7	1950	67.0	48.5	0.72	5.10	84.4	13.1	2100	95.1	5.42	76.6	112	5.15
	12.4	3.8	8.7	1450	67.4	42.8	0.63	4.48	82.6	15.0	1520	97.2	6.01	76.4	129	4.74
	12.4	3.8	8.7	1950	70.0	49.8	0.71	4.74	86.2	14.8	2100	100.2	5.55	81.2	114	5.29
	16.5	6.0	13.9	1450	68.8	43.3	0.63	4.31	83.5	16.0	1520	99.8	6.09	78.6	131	4.80
	16.5	6.0	13.9	1950	71.6	50.4	0.70	4.56	87.1	15.7	2100	102.9	5.63	83.6	115	5.35
90	8.3	1.6	3.7	1450	62.3	40.8	0.65	5.09	79.7	12.2	1520	96.1	5.97	75.5	129	4.72
	8.3	1.6	3.7	1950	64.8	47.5	0.73	5.38	83.2	12.0	2100	99.1	5.52	80.2	114	5.26
	12.4	3.7	8.5	1450	65.2	42.0	0.64	4.72	81.3	13.8	1520	101.1	6.13	79.8	132	4.83
	12.4	3.7	8.5	1950	67.8	48.8	0.72	4.99	84.8	13.6	2100	104.2	5.66	84.8	116	5.39
	16.5	5.9	13.6	1450	66.7	42.5	0.64	4.55	82.2	14.7	1520	103.6	6.22	82.0	133	4.88
	16.5	5.9	13.6	1950	69.3	49.5	0.71	4.81	85.8	14.4	2100	106.8	5.75	87.1	117	5.45
100	8.3	1.5	3.5	1450	58.3	39.0	0.67	5.70	77.9	10.2	Operation not recommended					
	8.3	1.5	3.5	1950	60.6	45.4	0.75	6.03	81.2	10.0						
	12.4	3.5	8.1	1450	60.9	40.2	0.66	5.29	79.0	11.5						
	12.4	3.5	8.1	1950	63.3	46.8	0.74	5.59	82.4	11.3						
	16.5	5.6	12.9	1450	62.3	40.8	0.65	5.09	79.7	12.2						
	16.5	5.6	12.9	1950	64.8	47.5	0.73	5.38	83.2	12.0						
110	8.3	1.4	3.2	1450	54.9	37.4	0.68	6.42	77.0	8.6						
	8.3	1.4	3.2	1950	57.1	43.5	0.76	6.79	80.4	8.4						
	12.4	3.3	7.6	1450	57.0	38.4	0.67	5.94	77.4	9.6						
	12.4	3.3	7.6	1950	59.2	44.7	0.75	6.29	80.8	9.4						
	16.5	5.3	12.2	1450	58.2	39.0	0.67	5.72	77.8	10.2						
	16.5	5.3	12.2	1950	60.5	45.4	0.75	6.05	81.2	10.0						
120	8.3	1.3	3.0	1450	52.8	36.2	0.69	7.02	77.0	7.5						
	8.3	1.3	3.0	1950	54.9	42.1	0.77	7.42	80.3	7.4						
	12.4	3.2	7.4	1450	54.0	36.9	0.68	6.71	77.1	8.0						
	12.4	3.2	7.4	1950	56.1	42.9	0.77	7.09	80.4	7.9						
	16.5	5.1	11.8	1450	54.8	37.3	0.68	6.49	77.2	8.5						
	16.5	5.1	11.8	1950	57.0	43.5	0.76	6.86	80.5	8.3						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.
Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.
Operation below 60°F EWT requires optional insulated water/refrigerant circuit.
See performance correction tables for operating conditions other than those listed above.
See Performance Data Selection Notes for operation in the shaded areas.

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Air Flow Correction Table

PSC Fan Motor

Airflow	Cooling					Heating		
% of Rated	Total Capacity	Sensible Capacity	S/T	Power	Heat of Rejection	Heating Capacity	Power	Heat of Extraction
68.75%	0.9465	0.8019	0.8472	0.9614	0.9496			
75%	0.9602	0.8350	0.8696	0.9675	0.9617	0.9740	1.0936	0.9425
81.25%	0.9724	0.8733	0.8981	0.9744	0.9728	0.9810	1.0635	0.9592
87.50%	0.9831	0.9149	0.9306	0.9821	0.9829	0.9876	1.0379	0.9744
93.75%	0.9923	0.9578	0.9653	0.9906	0.9920	0.9940	1.0167	0.9880
100%	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
106.25%	1.0062	1.0392	1.0328	1.0102	1.0070	1.0057	0.9878	1.0105
112.50%	1.0109	1.0733	1.0617	1.0211	1.0130	1.0112	0.9800	1.0194
118.75%	1.0141	1.1001	1.0848	1.0329	1.0180	1.0163	0.9705	1.0284
125%	1.0159	1.1174	1.0999	1.0455	1.0220	1.0211	0.9614	1.0368
130%	1.0161	1.1229	1.1050	1.0562	1.0244	1.0247	0.9554	1.0430

Black area denotes where operation is not recommended.

ECM Fan Motor

Airflow	Cooling					Heating		
% of Rated	Total Capacity	Sensible Capacity	S/T	Power	Heat of Rejection	Heating Capacity	Power	Heat of Extraction
68.75%	0.9470	0.8265	0.8727	0.9363	0.9449			
75%	0.9619	0.8593	0.8933	0.9455	0.9587	0.9700	1.0822	0.9410
81.25%	0.9747	0.8943	0.9175	0.9564	0.9711	0.9775	1.0536	0.9579
87.50%	0.9853	0.9302	0.9441	0.9691	0.9821	0.9851	1.0304	0.9733
93.75%	0.9938	0.9659	0.9719	0.9837	0.9918	0.9925	1.0125	0.9874
100%	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
106.25%	1.0041	1.0313	1.0271	1.0181	1.0069	1.0074	0.9928	1.0112
112.50%	1.0060	1.0584	1.0522	1.0381	1.0123	1.0148	0.9909	1.0210
118.75%	1.0070	1.0815	1.0740	1.0598	1.0174	1.0222	0.9622	1.0377
125%	1.0076	1.0998	1.0916	1.0834	1.0225	1.0295	0.8681	1.0712
130%	1.0083	1.1110	1.1018	1.1035	1.0271	1.0354	0.8456	1.0844

Black area denotes where operation is not recommended.

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Entering Air Correction Tables

Heating			
Entering Air DB °F	Heating Capacity	Power	Heat of Extraction
45	1.0514	0.7749	1.1240
50	1.0426	0.8113	1.1032
55	1.0329	0.8525	1.0802
60	1.0224	0.8980	1.0551
65	1.0114	0.9473	1.0282
68	1.0046	0.9786	1.0115
70	1.0000	1.0000	1.0000
75	0.9883	1.0556	0.9706
80	0.9764	1.1135	0.9404

Cooling												
Entering Air WB°F	Total Capacity	Sensible Cooling Capacity Multiplier - Entering DB °F									Power	Heat of Rejection
		60	65	70	75	80	80.6	85	90	95		
50	0.7432	0.9111	*	*	*	*	*	*	*	*	0.9866	0.7901
55	0.8202	0.7709	0.8820	1.0192	*	*	*	*	*	*	0.9887	0.8527
60	0.8960		0.6702	0.8540	1.0473	*	*	*	*	*	0.9924	0.9146
65	0.9705			0.6491	0.8657	1.0809	1.1066	*	*	*	0.9975	0.9757
66.2	0.9882			0.5939	0.8152	1.0333	1.0592	1.2481	*	*	0.9990	0.9903
67	1.0000			0.5559	0.7801	1.0000	1.0261	1.2158	*	*	1.0000	1.0000
70	1.0438				0.6377	0.8645	0.8913	1.0847	1.2983	*	1.0042	1.0362
75	1.1159	Operation not recommended				0.6008	0.6289	0.8323	1.0578	1.2773	1.0123	1.0959

* = Sensible capacity equals total capacity
AHRI/ISO/ASHRAE 13256-1 uses entering air conditions of Cooling - 80.6°F DB/66.2°F WB, 1
and Heating - 68°F DB/59°F WB entering air temperature
For ClimaDry® equipped units the minimum entering air temperature when cooling is 70ºF DB / 61ºF WB. Operation below this minimum may result in nuisance faults.

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Correction Tables - Antifreeze and Water Pressure Drop Adder for Options

Antifreeze Type	Antifreeze %	Cooling			Heating		WPD Corr. Fct. EWT 30°F
		EWT 90°F			EWT 30°F		
		Total Cap	Sens Cap	Power	Htg Cap	Power	
Water	0	1.000	1.000	1.000	1.000	1.000	1.000
Propylene Glycol	5	0.995	0.995	1.003	0.989	0.997	1.070
	15	0.986	0.986	1.009	0.968	0.990	1.210
	25	0.978	0.978	1.014	0.947	0.983	1.360
Methanol	5	0.997	0.997	1.002	0.989	0.997	1.070
	15	0.990	0.990	1.007	0.968	0.990	1.160
	25	0.982	0.982	1.012	0.949	0.984	1.220
Ethanol	5	0.998	0.998	1.002	0.981	0.994	1.140
	15	0.994	0.994	1.005	0.944	0.983	1.300
	25	0.986	0.986	1.009	0.917	0.974	1.360
Ethylene Glycol	5	0.998	0.998	1.002	0.993	0.998	1.040
	15	0.994	0.994	1.004	0.980	0.994	1.120
	25	0.988	0.988	1.008	0.966	0.990	1.200

Motorized Water Valve Option Corrections

Model	Cv	MOPD	WPD Adders		
			GPM	PSI	FT
006	4.9	150	1.0	0.04	0.10
	4.9	150	1.5	0.09	0.22
	4.9	150	2.0	0.17	0.38
009	4.9	150	1.4	0.08	0.19
	4.9	150	2.1	0.18	0.42
	4.9	150	2.8	0.33	0.75
012	4.9	150	1.8	0.13	0.31
	4.9	150	2.6	0.28	0.65
	4.9	150	3.5	0.51	1.18
018	10.3	125	2.8	0.07	0.16
	10.3	125	4.1	0.16	0.37
	10.3	125	5.5	0.29	0.66
024	10.3	125	4.0	0.15	0.35
	10.3	125	6.0	0.34	0.78
	10.3	125	8.0	0.60	1.39
030	10.3	125	4.0	0.15	0.35
	10.3	125	6.0	0.34	0.78
	10.3	125	8.0	0.60	1.39
036	10.3	125	4.5	0.19	0.44
	10.3	125	6.8	0.43	0.99
	10.3	125	9.0	0.76	1.76
042	10.3	125	5.5	0.29	0.66
	10.3	125	8.3	0.64	1.48
	10.3	125	11.0	1.14	2.63
048	10.3	125	6.0	0.34	0.78
	10.3	125	9.0	0.76	1.76
	10.3	125	12.0	1.36	3.14
060	8.9	125	7.5	0.71	1.64
	8.9	125	11.3	1.60	3.69
	8.9	125	15.0	2.84	6.56
070	8.9	125	8.3	0.86	1.98
	8.9	125	12.4	1.93	4.47
	8.9	125	16.5	3.44	7.94

ClimaDry® II Option Corrections (When Operating in Non-ClimaDry® Mode)

Model	WPD Adders		
	GPM	PSI	FT
018	2.8	0.77	1.77
	4.1	1.65	3.80
024	4.0	1.57	3.62
	6.0	3.53	8.14
030	4.0	0.69	1.59
	6.0	1.55	3.58
036	4.5	0.87	2.02
	6.8	1.99	4.60
042	5.5	1.30	3.01
	8.3	6.75	15.58
048	6.0	1.55	3.58
	9.0	3.49	8.06
060	7.5	1.49	3.45
	11.3	3.39	7.82
070	8.3	1.83	4.22
	12.4	4.08	9.42

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Blower Performance Data – Standard Unit - No Reheat (PSC Motor)

Airflow in CFM with wet coil and clean air filter

Model	Fan Speed	Rated Airflow	Min CFM	Airflow (cfm) at External Static Pressure (in. wg)														
				0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.60	0.70	0.80	0.90	1.00
006	HI	240	150	317	310	305	295	285	279	271	261	250	241	230	203	168			
	MED	240	150	260	253	245	238	230	222	214	202	190	180	167					
	LO	240	150	216	206	201	196	189	177	156									
009	HI	300	225	393	386	378	371	364	355	346	337	325	283	253					
	MED	300	225	366	360	353	347	341	334	326	318	310	262	230					
	LO	300	225	326	321	316	309	303	297	290	283	274	236						
012	HI	350	300	520	510	500	488	479	466	453	441	403	375	347	312				
	MED	350	300	459	453	447	437	428	420	411	400	368	344	317					
	LO	350	300	371	370	368	363	358	353	345	340	315							
018	HI	600	450	704	708	711	702	693	692	690	683	675	658	640	598	515			
	MED	600	450	602	601	599	590	581	583	585	579	573	560	547	492				
	LO	600	450	531	529	527	522	517	512	506	501	495	479	462					
018	HS HI	600	450	894	886	877	859	841	827	812	786	760	744	728	659				
	HS MED	600	450	765	760	755	747	738	725	711	690	668	654	640	602				
	HS LO	600	450	683	672	661	649	636	616	596	584	571	560	549					
024	HI	850	600	965	960	954	943	931	923	914	898	882	862	842	794	725	635		
	MED	850	600	841	833	825	817	809	800	790	777	763	747	731	686	623			
	LO	850	600	723	715	707	703	698	689	680	668	656	642	627					
024	HS HI	850	600	1271	1250	1229	1207	1185	1164	1143	1118	1093	1061	1029	953	875	753		
	HS MED	850	600	1048	1037	1025	1016	1007	994	981	962	943	915	886	822	731	626		
	HS LO	850	600	890	887	884	879	874	865	855	842	829	809	789	726	660			
030	HI	950	750	1271	1250	1229	1207	1185	1164	1143	1118	1093	1061	1029	953	875	753		
	MED	950	750	1048	1037	1025	1016	1007	994	981	962	943	915	886	822				
	LO	950	750	890	887	884	879	874	865	855	842	829	809	789					
030	HS HI	950	750	1439	1411	1383	1355	1327	1297	1266	1232	1198	1160	1122	1041	943	830		
	HS MED	950	750	1186	1174	1162	1151	1140	1126	1112	1089	1065	1039	1013	946	870	762		
	HS LO	950	750	1039	1038	1036	1028	1020	1009	997	983	968	946	923	866	798			
036	HI	1250	900	1411	1407	1402	1390	1378	1370	1361	1326	1290	1248	1205	1083	942			
	MED	1250	900	1171	1164	1156	1145	1133	1113	1092	1064	1035	997	958					
	LO	1250	900	983	967	950	943	936	936										
036	HS HI	1250	900	1648	1633	1617	1597	1576	1557	1537	1493	1448	1397	1345	1207	1051	957		
	HS MED	1250	900	1344	1335	1325	1312	1299	1276	1253	1220	1186	1143	1099	1007	903			
	HS LO	1250	900	1141	1128	1115	1106	1097	1077	1057	1031	1005	966	926					
042	HI	1400	1050	1634	1626	1618	1606	1594	1583	1571	1539	1507	1464	1420	1265	1078			
	MED	1400	1050	1332	1323	1314	1298	1282	1263	1243	1206	1169	1115	1060					
	LO	1400	1050	1130	1109	1088	1086	1084	1066	1048	1052	1055							
042	HS HI	1400	1050	1798	1781	1764	1738	1711	1688	1665	1630	1595	1555	1514	1420	1239			
	HS MED	1400	1050	1384	1382	1379	1375	1371	1356	1341	1318	1294	1261	1227					
	HS LO	1400	1050	1091	1088	1084	1081	1078	1069	1060									
048	HI	1600	1200	1798	1781	1764	1738	1711	1688	1665	1630	1595	1555	1514	1420	1239			
	MED	1600	1200	1384	1382	1379	1375	1371	1356	1341	1318	1294	1261	1227					
	LO	1600	1200	Operation not recommended															
048	HS HI	1600	1200	2011	1977	1942	1923	1903	1841	1778	1755	1732	1689	1645	1520	1431	1307	1211	
	HS MED	1600	1200	1881	1858	1834	1807	1780	1746	1711	1676	1640	1604	1567	1469	1378	1286		
	HS LO	1600	1200	1738	1716	1694	1673	1651	1634	1617	1584	1551	1508	1465	1390	1321	1228		
060	HI	1950	1500	2311	2306	2300	2290	2279	2268	2257	2233	2209	2175	2140	2088	1990	1901	1856	1752
	MED	1950	1500	2058	2049	2039	2028	2016	2000	1983	1966	1949	1935	1920	1874	1807	1750	1670	1582
	LO	1950	1500	1868	1863	1858	1858	1858	1848	1838	1822	1806	1799	1792	1749	1699	1636	1570	
060	HS HI	1950	1500	2510	2498	2486	2471	2455	2440	2424	2401	2377	2348	2318	2247	2161	2078	1986	1855
	HS MED	1950	1500	2171	2167	2162	2162	2162	2158	2153	2135	2117	2101	2085	2024	1971	1891	1823	1691
	HS LO	1950	1500	2010	2008	2006	2006	2006	2006	2006	1992	1977	1962	1947	1892	1851	1782	1705	1600
070	HI	2100	1800	2510	2498	2486	2471	2455	2440	2424	2401	2377	2348	2318	2247	2161	2078	1986	1855
	MED	2100	1800	2171	2167	2162	2162	2162	2158	2153	2135	2117	2101	2085	2024	1971	1891	1823	
	LO	2100	1800	2010	2008	2006	2006	2006	2006	2006	1992	1977	1962	1947	1892	1851			

Black areas denote ESP where operation is not recommended.
Units factory shipped on medium speed. Other speeds require field selection.
All airflow is rated and shown above at the lower voltage if unit is dual voltage rated, e.g. 208V for 208-230V units.
Only two speed fan (H & M) available on 575V units.
Performance stated is at the rated power supply, performance may vary as the power supply varies from the rated.
HS = High static fan option

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Blower Performance Data – Units with ClimaDry® (PSC Motor)

Coil Face Velocity FPM	TSH/V/D with Reheat ESP Loss				
	TSH/V/D 018 In. of Water	TSH/V/D 024, 030 In. of Water	TSH/V/D 036 In. of Water	TSH/V/D 042, 048 In. of Water	TSH/V/D 060, 070 In. of Water
200	0.037	0.033	0.031	0.028	0.026
250	0.052	0.046	0.042	0.038	0.034
300	0.077	0.066	0.059	0.051	0.044
350	0.113	0.096	0.085	0.073	0.061
400	0.181	0.160	0.145	0.131	0.117
450	0.242	0.226	0.215	0.205	0.194
500	0.360	0.345	0.335	0.326	0.316

For TS units with ClimaDry® Reheat coil applications, calculate face velocity of the entering air. From the table above, find ESP for Reheat application. The loss includes wet coil loss.

Example:
Reheat coil loss can be determined from the above table. Coil velocity (FPM) = Airflow (CFM) / Face Area (sq. ft.)

1. TSH036 has a face area of 4.86 sq. ft. (see physical data table).
2. At 1,100 cfm, coil velocity (FPM) = 1,100 / 4.86 = 226 FPM
3. From above table, it will be necessary to subtract 0.037 from the blower performance ESP.
4. On medium speed, the TSH036 (without reheat - see blower table) can deliver 1,100 CFM at 0.28 in. wg. with the standard PSC motor; with the reheat coil, it now delivers 1,085 CFM at 0.28 in. wg. or 1,100 CFM at 0.24 in. wg.
5. If the decrease in airflow is acceptable, no changes are necessary. Otherwise, high speed fan should be used to overcome the pressure drop of the reheat coil.

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ECM Control

The ECM fan is controlled by an interface board that converts thermostat inputs and field selectable CFM settings to signals used by the ECM motor controller. Units manufactured after July 2005 have version II (P/N 17B0019N01). Fan speeds are selected with a nine position DIP switch for version II. To take full advantage of the ECM motor features, a multi-stage thermostat should be used (2-stage heat/2-stage cool or 3-stage heat/2-stage cool).

HFC-410A packaged units built after May 2009 have ECM controller version III (P/N 17B0034N01). This controller includes logic and a relay to control the HWG functions.

Note: Power must be off to the unit for at least three seconds before the ECM motor will recognize a speed change. The motor will recognize a change in the CFM Adjust or dehumidification mode settings while the unit is powered.

There are four different airflow settings from lowest airflow rate (speed tap 1) to the highest airflow rate (speed tap 4). The charts below indicate settings for both versions of the ECM interface board, followed by detailed information for each setting.

Cooling settings

Tap Setting	Version II 17B0019N01 DIP Switch	
	SW1	SW2
1	ON	ON
2	ON	OFF
3	OFF	ON
4	OFF	OFF

Heating settings

Tap Setting	Version II 17B0019N01 DIP Switch	
	SW3	SW4
1	ON	ON
2	ON	OFF
3	OFF	ON
4	OFF	OFF

CFM Adjust settings

Tap Setting	Version II 17B0019N01 DIP Switch	
	SW7	SW8
TEST	ON	ON
-	ON	OFF
+	OFF	ON
NORM	OFF	OFF

Dehum Mode settings

Tap Setting	Version II 17B0019N01 DIP Switch
	SW9
NORM	ON
Dehumid	OFF

Aux/Emerg Heat settings

Tap Setting	Version II 17B0019N01 DIP Switch	
	SW5	SW6
1	ON	ON
2	ON	OFF
3	OFF	ON
4	OFF	OFF

WARNING! When the disconnect switch is closed, high voltage is present in some areas of the electrical panel. Exercise caution when working with energized equipment.

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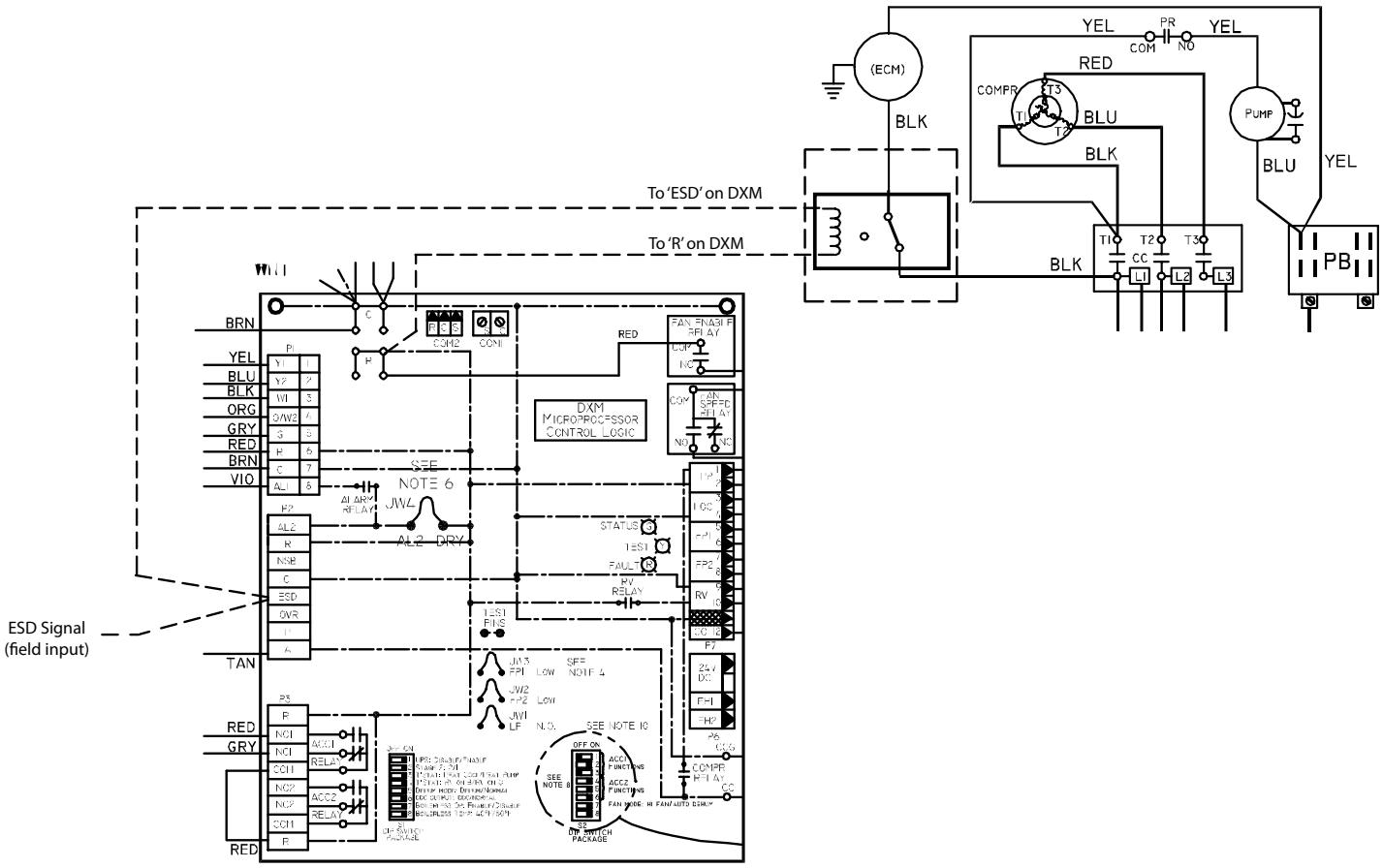
ECM Control

The ECM motor includes "soft start" and "ramp down" features. The soft start feature is a gentle increase of motor rpm at blower start up. This creates a much quieter blower start cycle.

The ramp down feature allows the blower to slowly decrease rpm to a full stop at the end of each blower cycle. This creates a much quieter end to each blower cycle and adds overall unit efficiency.

The ramp down feature may be eliminated during an ESD (Emergency Shut Down) situation when using a DXM unit controller. A DPDT relay is required to break the line voltage to the ECM motor during ESD. This relay can be wired as shown below to eliminate the ramp down (and operation) of the ECM blower motor.



Cooling Settings: The cooling setting determines the cooling (normal) CFM for all units with ECM motor. Cooling (normal) setting is used when the unit is not in dehumidification mode. Tap 1 is the lowest CFM setting, while tap 4 is the highest CFM setting. To avoid air coil freeze-up, tap 1 may not be used if the dehumidification mode is selected. Consult submittal data or specifications catalog for the specific unit series and model to correlate speed tap setting to airflow in CFM.

Heating Settings: The heating setting determines the heating CFM for Tranquility® 30 (TT) and Tranquility® 20 (TS) units. Tap 1 is the lowest CFM setting, while tap 4 is the highest CFM setting. Consult submittal data or specifications catalog for the specific unit series and model to correlate speed tap setting to airflow in CFM.

Auxiliary/Emergency Heat Settings: The auxiliary/emergency heat setting determines the CFM when the unit is in auxiliary heat or emergency heat mode. This setting is used for residential units with internal electric heat. When auxiliary electric heat is energized (i.e. compressor and electric heat), the greater of the auxiliary/emergency or heating setting will be used. A "G" (fan) signal must be present from the thermostat for electric heat to operate. Consult the submittal data or specifications catalog for the specific unit series and model to correlate speed tap setting to airflow in CFM.

CFM Adjust Settings: The CFM adjust setting allows four selections. The NORM setting is the factory default position. The + or – settings adjust the airflow by +/- 5%. The +/- settings are used to "fine tune" airflow adjustments. The TEST setting runs the ECM motor at 400 cfm/ton, which causes the motor to operate like a standard PSC motor, and disables the CFM counter.

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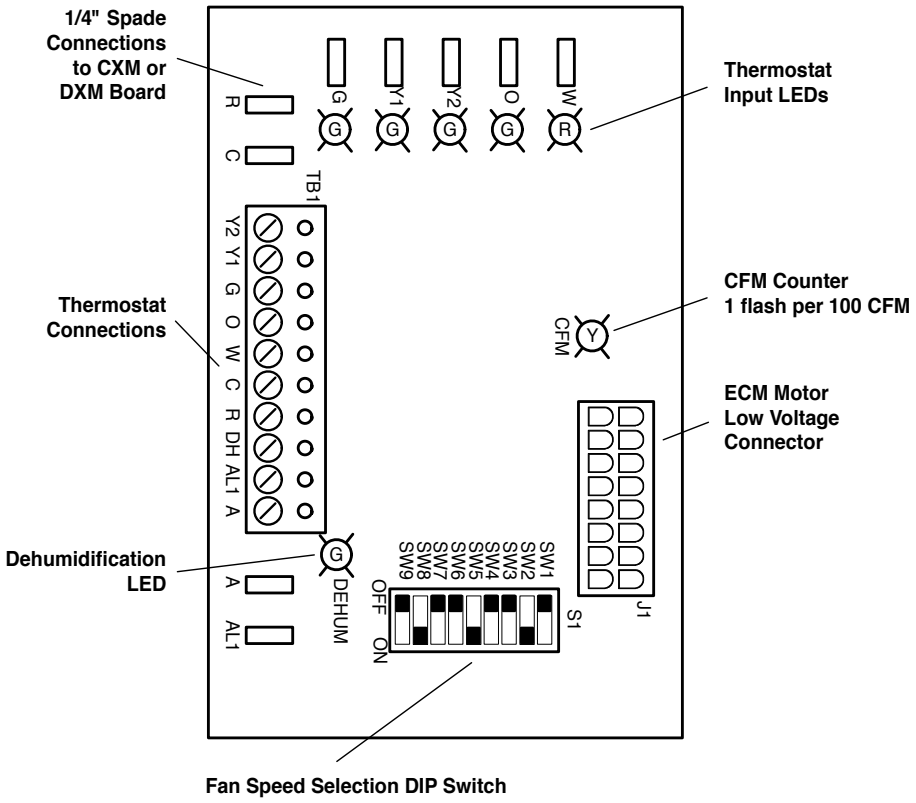
ECM Control

Dehumidification Mode Settings: The dehumidification mode setting provides field selection of humidity control. When operating in the normal mode, the cooling airflow settings are determined by the cooling tap setting above. When dehumidification is enabled there is a reduction in airflow in cooling to increase the moisture removal of the heat pump. Consult submittal data or specifications catalog for the specific unit series and model to correlate speed tap to airflow in CFM. The dehumidification mode can be enabled in two ways.

1. Constant Dehumidification Mode: When the dehumidification mode is selected (via DIP switch or jumper setting), the ECM motor will operate with a multiplier applied to the cooling CFM settings (approx. 20-25% lower airflow). Any time the unit is running in the cooling mode, it will operate at the lower airflow to improve latent capacity. The "DEHUM" LED will be illuminated at all times. Heating airflow is not affected. NOTE: Do not select dehumidification mode if cooling setting is tap 1.
2. Automatic (Humidistat-controlled) Dehumidification Mode: When the dehumidification mode is selected (via DIP switch or jumper setting) AND a humidistat is connected to terminal DH (version II) or HUM (version I), the cooling airflow will only be reduced when the humidistat senses that additional dehumidification is required. The DH (or HUM) terminal is reverse logic. Therefore, a humidistat (not dehumidistat) is required. The "DEHUM" LED will be illuminated only when the humidistat is calling for dehumidification mode. Heating airflow is not affected. **NOTE: Do not select dehumidification mode if cooling setting is tap 1.**



ECM Interface Board version II
(P/N 17B0019N01)

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Blower Performance Data – (ECM Motor) - Standard Unit - No Reheat

Airflow in CFM with wet coil and clean air filter

Model	Max ESP (in. wg)	Fan Motor (hp)	Tap Setting	Cooling Mode			Dehumid Mode			Heating Mode			Residential Units Only	
				Stg 1	Stg 2	Fan	Stg 1	Stg 2	Fan	Stg 1	Stg 2	Fan	AUX CFM	Aux/ Emerg Mode
018	0.50	1/2	4	640	800	400	500	620	400	640	800	400	4	800
			3	600	750	375	470	590	375	600	750	375	3	750
			2	525	650	330	400	500	330	525	650	330	2	650
			1	450	550	280				450	550	280	1	650
024	0.50	1/2	4	780	950	470	610	740	470	870	1060	470	4	1060
			3	700	850	420	540	660	420	780	950	420	3	950
			2	630	770	360	490	600	360	670	820	390	2	820
			1	550	670	300				570	690	340	1	690
030	0.50	1/2	4	920	1130	560	720	880	560	1000	1230	560	4	1230
			3	820	1000	500	640	780	500	900	1100	500	3	1100
			2	740	900	450	580	700	450	800	980	450	2	980
			1	660	800	400				700	850	400	1	850
036	0.50	1/2	4	1150	1400	700	900	1090	700	1150	1400	700	4	1400
			3	1020	1250	630	800	980	630	1020	1250	630	3	1350
			2	890	1080	540	690	840	540	890	1080	540	2	1350
			1	740	900	450				750	920	450	1	1350
042	0.50	1/2	4	1290	1580	790	1010	1230	790	1290	1580	790	4	1580
			3	1150	1400	700	900	1090	700	1150	1400	700	3	1400
			2	1050	1280	640	820	1000	640	1020	1240	640	2	1350
			1	920	1120	560				900	1080	560	1	1350
048	0.75	1	4	1420	1730	870	1110	1350	870	1520	1850	865	4	1850
			3	1270	1550	780	990	1210	780	1350	1650	775	3	1650
			2	1180	1440	720	920	1120	720	1190	1450	720	2	1450
			1	1050	1280	640				1020	1250	640	1	1350
060	0.75	1	4	1680	2050	1030	1310	1600	1030	1870	2280	1030	4	2280
			3	1500	1830	910	1170	1420	910	1680	2050	910	3	2050
			2	1400	1700	850	1090	1330	850	1480	1800	850	2	1800
			1	1300	1580	790				1270	1550	790	1	1550
070	0.75	1	4	1830	2230	1100	1420	1740	1100	1830	2230	1100	4	2230
			3	1600	1950	980	1250	1520	980	1720	2100	980	3	2100
			2	1440	1750	880	1120	1360	880	1670	1950	880	2	1950
			1	1200	1580	790				1460	1780	790	1	1780

See ECM control section for details on setting taps.
Bold numbers indicate factory settings.
During Auxiliary operation the CFM will run at the higher of the Heating (Delay jumper) or AUX settings.
Airflow is controlled within 5% up to the Max ESP shown with wet coil.
Do not select Dehumidification mode if HP CFM is on setting 1.
All units AHRI/ISO/ASHRAE 13256-1 rated HP CFM Setting 3.

Tranquility® 20 (TS) Series with ClimaDry® Reheat Option (ECM Motor)

All Tranquility® 20 (TS) units with optional ECM fan motor automatically adjusts for the reheat coil. The small additional pressure drop of the reheat coil causes the ECM motor to slightly increase RPM to overcome the added pressure drop, and maintain selected CFM up to the maximum ESP.

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ClimaDry® II Option - Benefits and Application

ClimaDry® II Modulating Reheat Option

ClimateMaster's patented ClimaDry® II Dehumidification option is an innovative means of providing modulating reheat without the complication of refrigeration controls. ClimaDry® II is hot gas generated reheat, which utilizes one of the biggest advantages of a Water-Source Heat Pump (WSHP), the transfer of energy through the water piping system. ClimaDry® II simply diverts condenser water through a water-to-air coil that is placed after the evaporator coil. If condenser water is not warm enough, the internal "run-around" loop increases the water temperature with each pass through the condenser coil (see figure 1, below).

ClimaDry® II Benefits

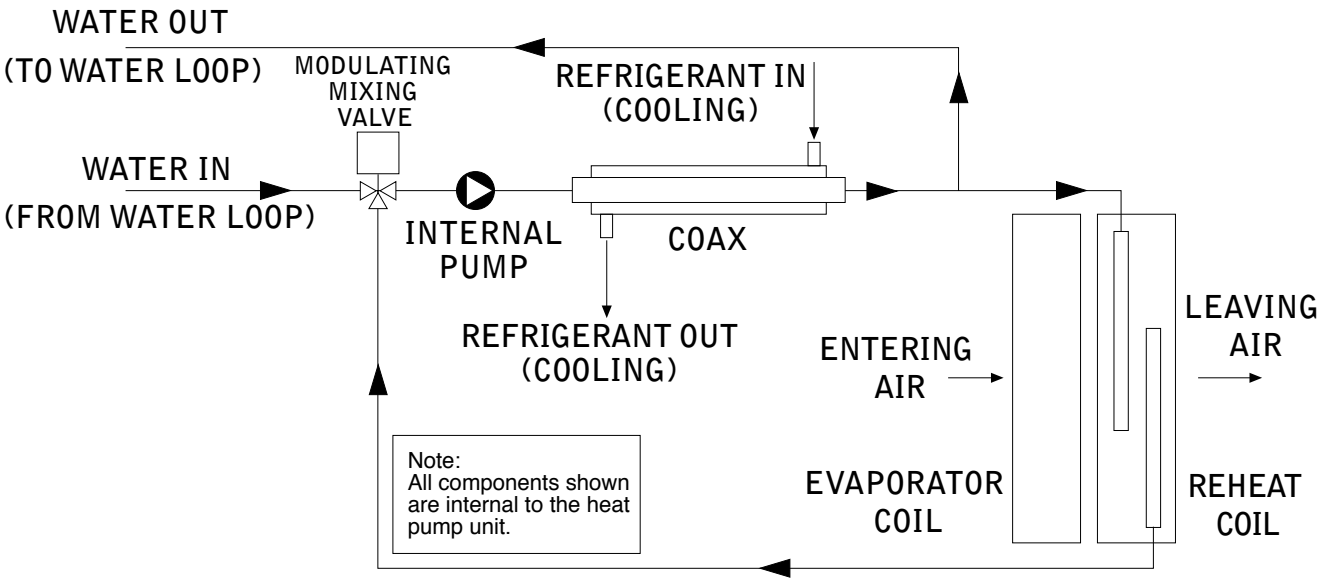
ClimaDry® II is like no other reheat option on the market. Proportional reheat is controlled to the desired leaving air temperature setpoint (factory setpoint of 72°F, 22°C), no matter what the water loop temperature is. Since dehumidification operation will occur under less than full load cooling conditions a good percentage of the time, it is important to have a reheat function that provides 100% reheat in the spring and fall when the water loop is cool. Supply air temperature is field adjustable to +/- 3°F [+/- 1.7°C] for even greater flexibility with the optional potentiometer. It is recommended that the ClimaDry® supply air temperature be set to match the space cooling setpoint so that ClimaDry® does not impact room temperature. Competitors without ClimaDry® II typically use an on/off (non-modulating) refrigeration based reheat circuit, typically referred to as "Hot gas reheat" (HGR). HGR needs higher condensing temperatures to work well, typically 85°F [29°C] entering water temperature (EWT). With HGR, cooler water temperatures produce cooler supply air temperatures, which could overcool the space, requiring additional space heating from another source or a special auto-change-over relay to allow the unit to switch back and forth between reheat and heating. Rarely does HGR provide 100% reheat, like ClimaDry® II. ClimaDry® II has a simple and easy to troubleshoot refrigerant circuit. No switching valves or hard to diagnose leaky check valves are utilized. No unusual refrigerant pressures occur during the reheat mode. The ClimaDry® II refrigerant circuit is like every other ClimateMaster unit (without reheat), so everything the technician already knows applies to troubleshooting the ClimaDry® II refrigeration circuit. Plus, the water loop portion of the ClimaDry® II option is easy to understand and diagnose.

ClimaDry® II Applications

ClimaDry® II can be applied to a number of common applications, such as:

- Classrooms.
- Condominiums.
- Apartments.
- Computer rooms.
- Spaces with high latent loads like auditoriums, theaters, convention centers, etc.
- Most applications where humidity is a problem. **(Note: ClimaDry® is not for use in high fraction outdoor air applications or in applications with corrosive atmospheres, such as pool rooms.)**

Figure 1: ClimaDry® II Schematic



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ClimaDry® II Option - Benefits and Application

With the ClimaDry® II option, return air from the space is cooled by the air-to-refrigerant (evaporator) coil, and then reheated by the water-to-air (reheat) coil to dehumidify the air, but maintain the same space temperature (thus operating as a dehumidifier).

The moisture removal capability of the heat pump is determined by the unit's latent capacity rating. Latent capacity equals Total capacity minus Sensible capacity. Using unit performance data from submittals (http://www.climatemaster.com/) select the correct model, use your maximum entering water temperature (EWT) and flow rate to select TC and SC. For example, at 80°F [26.7°C] EWT and 6.8 GPM, the moisture removal capability (latent capacity) of a ClimateMaster TS036 is 8.1 Mbtuh [2.4kW] as shown below.

Dividing the latent capacity by 1,069 BTU/LB of water vapor at 80°F DB and 67°F WB [26.7°C DB and 19.4°C WB] moist air enthalpy, converts the amount of moisture removal to pounds per hour (multiply pounds per hour by 0.4536 to obtain kg/hr). Calculations are shown below.

Most ClimateMaster heat pumps have a sensible-to-total (S/T) ratio of 0.72 to 0.82. Therefore, approximately, 25% of the cooling capacity is dedicated to latent cooling capacity (moisture removal). When selecting a unit with ClimaDry® II, the space sensible and latent loads should be calculated. If the unit will be used for space cooling, a unit with at least enough capacity to satisfy the building sensible load should be selected. If the latent cooling load is not satisfied by the selection, a larger unit with enough latent capacity will be required. If the unit will be used for dehumidification purposes only, the latent capacity is the only consideration necessary. In this case, sensible load is immaterial.

Example TS036 PSC Blower Performance

LC = TC - SC = 32.3 - 24.2 = 8.1 Mbtuh

8,100 Btuh ÷ 1069 = 7.6 lbs/hr

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
70	4.5	1.1	2.5	940	32.8	21.0	0.64	2.06	39.9	15.9	940	37.9	2.65	28.9	107	4.19
	4.5	1.1	2.5	1250	34.2	25.1	0.73	2.13	41.4	16.0	1250	38.9	2.42	30.6	99	4.70
	6.8	2.9	6.7	940	34.0	21.4	0.63	1.96	40.7	17.4	940	39.7	2.68	30.5	109	4.33
	6.8	2.9	6.7	1250	35.4	25.6	0.72	2.02	42.3	17.5	1250	40.7	2.45	32.3	100	4.87
80	4.5	1.0	2.3	940	30.8	20.2	0.65	2.25	38.5	13.7	940	41.6	2.72	32.2	111	4.48
	4.5	1.0	2.3	1250	32.1	24.1	0.75	2.32	40.0	13.8	1250	42.7	2.48	34.2	102	5.04
	6.8	2.8	6.5	940	32.0	20.9	0.64	2.13	39.3	15.0	940	43.6	2.75	34.1	113	4.64
	6.8	2.8	6.5	1250	33.4	24.7	0.74	2.21	40.9	15.1	1250	44.8	2.52	36.1	103	5.21
85	4.5	1.0	2.2	940	29.8	19.8	0.66	2.36	37.9	12.7	940	43.4	2.75	33.9	113	4.63
	4.5	1.0	2.2	1250	31.1	23.7	0.76	2.44	39.4	12.8	1250	44.6	2.52	36.0	103	5.20
	6.8	2.7	6.2	940	31.0	20.2	0.65	2.24	38.6	13.9	940	45.6	2.79	35.9	115	4.79
	6.8	2.7	6.2	1250	32.3	24.2	0.75	2.31	40.2	14.0	1250	46.8	2.55	38.1	105	5.38
90	4.5	0.9	2.1	940	28.9	19.4	0.67	2.47	37.3	11.7	940	45.3	2.79	35.6	115	4.77
	4.5	0.9	2.1	1250	30.1	23.3	0.77	2.55	38.8	11.8	1250	46.5	2.55	37.8	104	5.35
	6.8	2.6	6.0	940	30.0	19.8	0.66	2.34	38.0	12.8	940	47.6	2.83	37.7	117	4.93
	6.8	2.6	6.0	1250	31.2	23.7	0.76	2.42	39.5	12.9	1250	48.9	2.59	40.0	106	5.54

Note: Minimum entering air temperature

Dividing the latent capacity by 1,069 BTU/LB of water vapor at 80°F DB and 67°F WB [26.7°C DB and 19.4°C WB] moist air enthalpy, converts the amount of moisture removal to pounds per hour (multiply pounds per hour by 0.4536 to obtain kg/hr).

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ClimaDry® II Option - Sequence of Operation

ClimaDry® II Sequence of Operation - A heat pump equipped with ClimaDry® II can operate in three modes; cooling, cooling with reheat (dehumidification), and heating. The cooling/heating modes are like any other ClimateMaster WSHP. The reversing valve ("O" signal) is energized in cooling, along with the compressor contactor(s) and blower relay. In the heating mode the reversing valve is de-energized. Almost any thermostat will activate the heat pump in heating or cooling modes. The DXM microprocessor board, which is required with the ClimaDry® II option, will accept either heat pump (Y,O) thermostats or non-heat pump (Y,W) thermostats. The reheat mode requires either a separate humidistat/ dehumidistat or a thermostat that has an integrated dehumidification function for activation. The DXM board is configured to work with either a humidistat or dehumidistat input to terminal "H". Upon receiving an "H" input, the DXM board will activate the cooling mode and engage reheat. Table 4 shows the relationship between thermostat input signals and unit operation. There are four operational inputs for single stage units and six operational inputs for dual stage units:

-Fan Only
-1st Stage Cooling
-2nd Stage Cooling
-1st Stage Heating
-2nd Stage Heating
-Reheat Mode

Fan Only: A (G) call from the thermostat to the (G) terminal of the DXM control board will bring the unit on in fan only mode.

1st Stage Cooling: A simultaneous call from (G), (Y1), and (O) to the (G), (Y1), (O/W2) terminals of the DXM control board will bring the unit on in 1st Stage Cooling.

2nd Stage Cooling: A simultaneous call from (G), (Y1), (Y2), and (O) to the (G), (Y1), (Y2), and (O/W2) terminals of the DXM control board will bring the unit on in 2nd Stage Cooling. When the call is satisfied at the thermostat the unit will continue to run in 1st Stage Cooling until the 1st Stage Cooling call is removed or satisfied, shutting down the unit. **NOTE: Not all units have two-stage cooling functionality.**

Table 2: Humidistat/Dehumidistat Logic and DXM (2.1, 2.2., 2.3) DIP Settings

Sensor	2.1	2.2	2.3	Logic	Reheat (ON) - H	Reheat (OFF) - H
Humidistat						
Dehumidistat						

Table 3: ClimaDry® II Operating Modes

Mode	Input					Output				
	O	G	Y1	Y2[3]	H	O	G	Y1	Y2[3]	Reheat
No Demand	ON/OFF	OFF	OFF	OFF	OFF	ON/OFF	OFF	OFF	OFF	OFF
Fan Only	ON/OFF	ON	OFF	OFF	OFF	ON/OFF	ON	OFF	OFF	OFF
Cooling 1st Stage	ON	ON	ON	OFF	OFF	ON	ON	ON	OFF	OFF
Cooling 2nd Stage	ON	ON	ON	ON	OFF	ON	ON	ON	ON	OFF
Cooling & Dehumidistat[1]	ON	ON	ON	ON/OFF	ON	ON	ON	ON	ON/OFF	OFF
Dehumidistat Only	ON/OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON
Heating 1st Stage	OFF	ON	ON	OFF	OFF	OFF	ON	ON	OFF	OFF
Heating 2nd Stage	OFF	ON	ON	ON	OFF	OFF	ON	ON	ON	OFF
Heating & Dehumidistat[2]	OFF	ON	ON	ON/OFF	ON	OFF	ON	ON	ON/OFF	OFF

[1]Cooling input takes priority over dehumidify input.
[2]DXM is programmed to ignore the H demand when the unit is in heating mode.
[3]N/A for single stage units; Full load operation for dual capacity units.
[4]ON/OFF = Either ON or OFF.

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ClimaDry® II Option - Sequence of Operation

1st Stage Heating: A simultaneous call from (G) and (Y1) to the (G) and (Y1) terminals of the DXM control board will bring the unit on in 1st Stage Heating.

2nd Stage Heating: A simultaneous call from (G), (Y1), and (Y2) to the (G), (Y1), and (Y2) terminals of the DXM control board will bring the unit on in 2nd Stage Heating. When the call is satisfied at the thermostat the unit will continue to run in 1st Stage Heating until the call is removed or satisfied, shutting down the unit. **NOTE: Not all units have two-stage heating functionality (e.g. TLV084-150 units).**

Reheat Mode: A call from the Humidistat/Dehumidistat to the (H) terminal of the DXM control board will bring the unit on in Reheat Mode if there is no call for cooling at the thermostat. When the Humidistat/ Dehumidification call is removed or satisfied the unit will shut down. **NOTE: Cooling always overrides Reheat Mode. In the Cooling mode, the unit cools and dehumidifies. If the cooling thermostat is satisfied but there is still a call for dehumidification, the unit will continue to operate in Reheat Mode.**

Note: Care must be taken when using a humidistat to operate ClimaDry®. When the DIP switch on the DXM controller is set for 'humidistat' it reverses the control logic so that an "open" control circuit initiates a ClimaDry® run cycle. If a humidistat is not connected, or if a manual switch on the humidistat is set to "off", ClimaDry® will see the open circuit and call for dehumidification.

ClimaDry® II Component Functions
The ClimaDry® II option consists of the following components:
Motorized Valve/Proportional Controller
Supply Air Sensor
Loop Pump
Hydronic Coil
Low Air Temperature Switch

The Proportional Controller operates on 24 VAC power supply and automatically adjusts the water valve based upon the Supply Air Sensor. The Supply Air Sensor senses supply air temperature at the blower inlet providing the input signal necessary for the proportional control to drive the motorized valve during the reheat mode of operation. The Motorized Valve is a proportional actuator/three-way valve combination used to divert the condenser water from the coax to the hydronic reheat coil during the reheat mode of operation. The proportional controller signals the motorized valve based on the supply air temperature of the supply air sensor.

The Loop Pump circulates condenser water through the hydronic reheat coil during the reheat mode of operation. In this application, the loop pump is only energized during the reheat mode of operation. The Hydronic Coil is utilized during the reheat mode of operation to reheat the air to the setpoint of the proportional controller. Condenser water is diverted by the motorized valve and pumped through the hydronic coil by the loop pump in proportion to the control setpoint. The amount of reheating is dependent on the setpoint and how far from setpoint the supply air temperature is. The factory setpoint is 72°F [22°C], generally considered "neutral" air.

ClimaDry® II Application Considerations
The reheat coil adds a small amount of resistance to the air stream. In some cases the high static option may be required for applications with higher static ductwork. Consult the submittal data or the Installation/Operation/ Maintenance (I.O.M.) manual for the specific heat pump to review blower tables.

Unlike most hot gas reheat options, the ClimaDry® II option will operate over a wide range of EWTs. Special flow regulation (water regulating valve) is not required for low EWT conditions.

Unit minimum entering air temperature while in the dehumidification, cooling, or continuous fan modes is **65°F DB/55°F WB**. Operation below this minimum may result in nuisance faults.

Water-source heat pumps with ClimaDry® II should not be used as make-up air units. These applications should use equipment specifically designed for make-up air.

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Physical Data

Model	006	009	012	018	024	030	036	042	048	060	070
Compressor (1 Each)	Rotary			Scroll							
Factory Charge HFC-410A (oz) [kg]	24 [0.68]	32 [0.91]	34 [0.96]	50 [1.13]	56 [1.59]	58 [1.64]	70 [1.98]	80 [2.27]	80 [2.27]	136 [3.86]	144 [4.08]
ECM Fan Motor & Blower											
Fan Motor (hp) [W]	N/A	N/A	N/A	1/2 [373]	1/2 [373]	1/2 [373]	1/2 [373]	1/2 [373]	1 [746]	1 [746]	1 [746]
Blower Wheel Size (dia x w) - (in) [mm]	N/A	N/A	N/A	9 x 7 [229 x 178]	9 x 7 [229 x 178]	9 x 7 [229 x 178]	11 x 10 [279 x 254]	11 x 10 [279 x 254]	11 x 10 [279 x 254]	11 x 10 [279 x 254]	11 x 10 [279 x 254]
PSC Fan Motor & Blower (3 Speeds)											
Fan Motor (hp) [W]	1/25 [30]	1/20 [37]	1/8 [93]	1/6 [124]	1/5 [149]	1/3 [249]	1/2 [373]	1/2 [373]	3/4 [560]	1 [746]	1 [746]
High Static Fan Motor (hp) [W]	N/A	N/A	N/A	1/5 [149]	1/3 [249]	1/2 [373]	1/2 [373]	3/4 [560]	3/4 [560]	1 [746]	Not Available
Blower Wheel Size (dia x w) - (in) [mm]	6 X 5 [152 X 127]	6 X 5 [152 X 127]	6 X 5 [152 X 127]	9 x 7 [229 x 178]	9 x 7 [229 x 178]	9 x 7 [229 x 178]	10 x 10 [254 x 254]	10 x 10 [254 x 254]	10 x 10 [254 x 254]	11 x 10 [279 x 254]	11 x 10 [279 x 254]
Water Connection Size											
FPT (in)	1/2”	1/2”	1/2”	3/4”	3/4”	3/4”	3/4”	1”	1”	1”	1”
HWG Connection Size											
FPT (in)	N/A	N/A	N/A	1/2”	1/2”	1/2”	1/2”	1/2”	1/2”	1/2”	1/2”
Coax Volume											
Volume (US Gallons) [liters]	0.17 [0.64]	0.29 [1.10]	0.45 [1.70]	0.56 [2.12]	0.76 [2.88]	0.76 [2.88]	0.92 [3.48]	1.24 [4.69]	1.24 [4.69]	1.56 [5.91]	1.56 [5.91]
Vertical Upflow/Downflow											
Air Coil Dimensions (h x w) - (in) [mm]	16 x 16 [406 x 406] Upflow Only	16 x 16 [406 x 406] Upflow Only	16 x 16 [406 x 406] Upflow Only	24 x 20 [610 x 508]	28 x 20 [711 x 508]	28 x 20 [711 x 508]	28 x 25 [711 x 635]	32 x 25 [813 x 635]	32 x 25 [813 x 635]	36 x 25 [914 x 635]	36 x 25 [914 x 635]
Standard Filter - 1” [25.4mm] Throwaway, qty (in) [mm]	16 x 20 [406 x 508]	16 x 20 [406 x 508]	16 x 20 [406 x 508]	24 x 24 [610 x 610]	28 x 24 [711 x 610]	28 x 24 [711 x 610]	28 x 30 [711 x 762]	2 - 16 x 30 [2 - 406 x 762]	2 - 16 x 30 [2 - 406 x 762]	1 - 16 x 30; 1 - 20 x 30 [1 - 406 x 762; 1 - 508 x 762]	1 - 16 x 30; 1 - 20 x 30 [1 - 406 x 762; 1 - 508 x 762]
Weight - Operating, (lbs) [kg]	136 [62]	156 [71]	160 [73]	257 [117]	266 [121]	268 [122]	327 [148]	414 [188]	416 [189]	441 [200]	443 [201]
Weight - Packaged, (lbs) [kg]	146 [66]	166 [75]	170 [77]	267 [121]	276 [125]	278 [126]	337 [153]	424 [192]	426 [193]	451 [205]	453 [205]
Horizontal											
Air Coil Dimensions (h x w) - (in) [mm]	16 x 16 [406 x 406]	16 x 16 [406 x 406]	16 x 16 [406 x 406]	18 x 27 [457 x 686]	18 x 31 [457 x 787]	18 x 31 [457 x 787]	20 x 35 [508 x 889]	20 x 40 [508 x 1016]	20 x 40 [508 x 1016]	20 x 45 [508 x 1143]	20 x 45 [508 x 1143]
Standard Filter - 1” [25.4mm] Throwaway, qty (in) [mm]	16 x 20 [406 x 508]	16 x 20 [406 x 508]	16 x 20 [406 x 508]	2 - 18 x 18 [2 - 457 x 457]	2 - 18 x 18 [2 - 457 x 457]	2 - 18 x 18 [2 - 457 x 457]	1 - 12 x 20; 1- 20 x 25 [1 - 305 x 508; 1 - 508 x 635]	1 - 18 x 20; 1 - 20 x 24 [1 - 457 x 508; 1 - 508 x 610]	1 - 18 x 20; 1 - 20 x 24 [1 - 457 x 508; 1 - 508 x 610]	2 - 20 x 24 [2 - 508 x 610]	2 - 20 x 24 [2 - 508 x 610]
Weight - Operating, (lbs) [kg]	136 [62]	156 [71]	160 [73]	257 [117]	266 [121]	268 [122]	327 [148]	414 [188]	416 [189]	441 [200]	443 [201]
Weight - Packaged, (lbs) [kg]	146 [66]	166 [75]	170 [77]	267 [121]	276 [125]	278 [126]	337 [153]	424 [192]	426 [193]	451 [205]	453 [205]

Notes:
All units have TXV expansion device and 1/2” & 3/4” electrical knockouts.
575 volt motors are two speed.
For units with ClimaDry® II option add 66lbs (30kg) to weights.

Unit Maximum Water Working Pressure	
Options	Max Pressure PSIG [kPa]
Base Unit	300 [2,068]
Internal Secondary Pump (ISP)	145 [999]
ClimaDry®	145 [999]
Internal Motorized Water Valve (MWV)	300 [2,068]
Internal Auto Flow Valve	300 [2,068]

Use the lowest maximum pressure rating when multiple options are combined.

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TS - Horizontal – Dimensional Data

Horizontal Model		Overall Cabinet		
		*A Width	B Length	C Height
006 - 012	in	22.4	43.1	17.3
	cm	56.8	107.8	43.1
018	in	22.4	62.2	19.3
	cm	56.8	158.0	48.9
024 - 030	in	22.4	62.2	19.3
	cm	56.8	158.0	48.9
036	in	25.4	71.2	21.3
	cm	64.5	180.8	54.0
042 - 048	in	25.4	76.2	21.3
	cm	64.5	193.5	54.0
060 - 070	in	25.4	81.2	21.3
	cm	64.5	206.2	54.0

*Does not include air filter supports. Add 2" (5.1cm) when a 1" (25.4mm) filter is used, add 3" (7.6cm) when a 2" (50.8mm) filter is used.

Horizontal Model		Water Connections							Water Connections - Units with ClimaDry®	
		1	2	3	4	5			1	2
		Loop In D	Loop Out E	HWG In F	HWG Out G	H	Water Loop FPT	HWG FPT	Loop In D	Loop Out E
006 - 012	in	3.7	9.7	N/A	N/A	0.8	1/2"	N/A	N/A	N/A
	cm	9.3	24.2			2.0				
018	in	2.1	10.0	13.9	16.9	0.6	3/4"	1/2"	2.1	10.0
	cm	5.2	25.4	35.2	42.9	1.5			5.2	25.4
024 - 030	in	2.1	10.0	13.9	16.9	0.6	3/4"	1/2"	5.96	13.13
	cm	5.2	25.4	35.2	42.9	1.5			15.14	33.35
036	in	3.4	10.8	15.6	18.9	0.6	3/4"	1/2"	5.96	13.13
	cm	8.6	27.5	39.7	47.9	1.5			15.14	33.35
042 - 048	in	3.4	10.8	15.6	18.9	0.6	1"	1/2"	5.96	13.13
	cm	8.6	27.5	39.7	47.9	1.5			15.14	33.35
060 - 070	in	3.4	10.8	15.6	18.9	0.6	1"	1/2"	5.96	13.13
	cm	8.6	27.5	39.7	47.9	1.5			15.14	33.35

Horizontal Model		Electrical Knockouts		
		J 1/2"	K 1/2"	L 3/4"
		Low Voltage	External Pump	Power Supply
006 - 012	in	3.8	6.3	8.8
	cm	9.4	15.6	21.9
018	in	3.6	6.1	8.6
	cm	9.2	15.6	21.9
024 - 030	in	3.6	6.1	8.6
	cm	9.2	15.6	21.9
036	in	3.6	6.1	8.6
	cm	9.2	15.6	21.9
042 - 048	in	3.6	6.1	8.6
	cm	9.2	15.6	21.9
060 - 070	in	3.6	6.1	8.6
	cm	9.2	15.6	21.9

Notes:
1. While clear access to all removable panels is not required, installer should take care to comply with all building codes and allow adequate clearance for future field service.
2. Horizontal units shipped with filter bracket only. This bracket should be removed for return duct connection
3. Discharge flange and hanger brackets are factory installed.
4. Condensate is 3/4" FPT.
5. Blower service panel requires 2' service access.
6. Blower service access is through back panel on straight discharge units or through panel opposite air coil on back discharge units.

Legend:
CAP = Control Access Panel
BSP = Blower Service Panel
CSP = Compressor Access Panel
ASP = Alternative Service Panel

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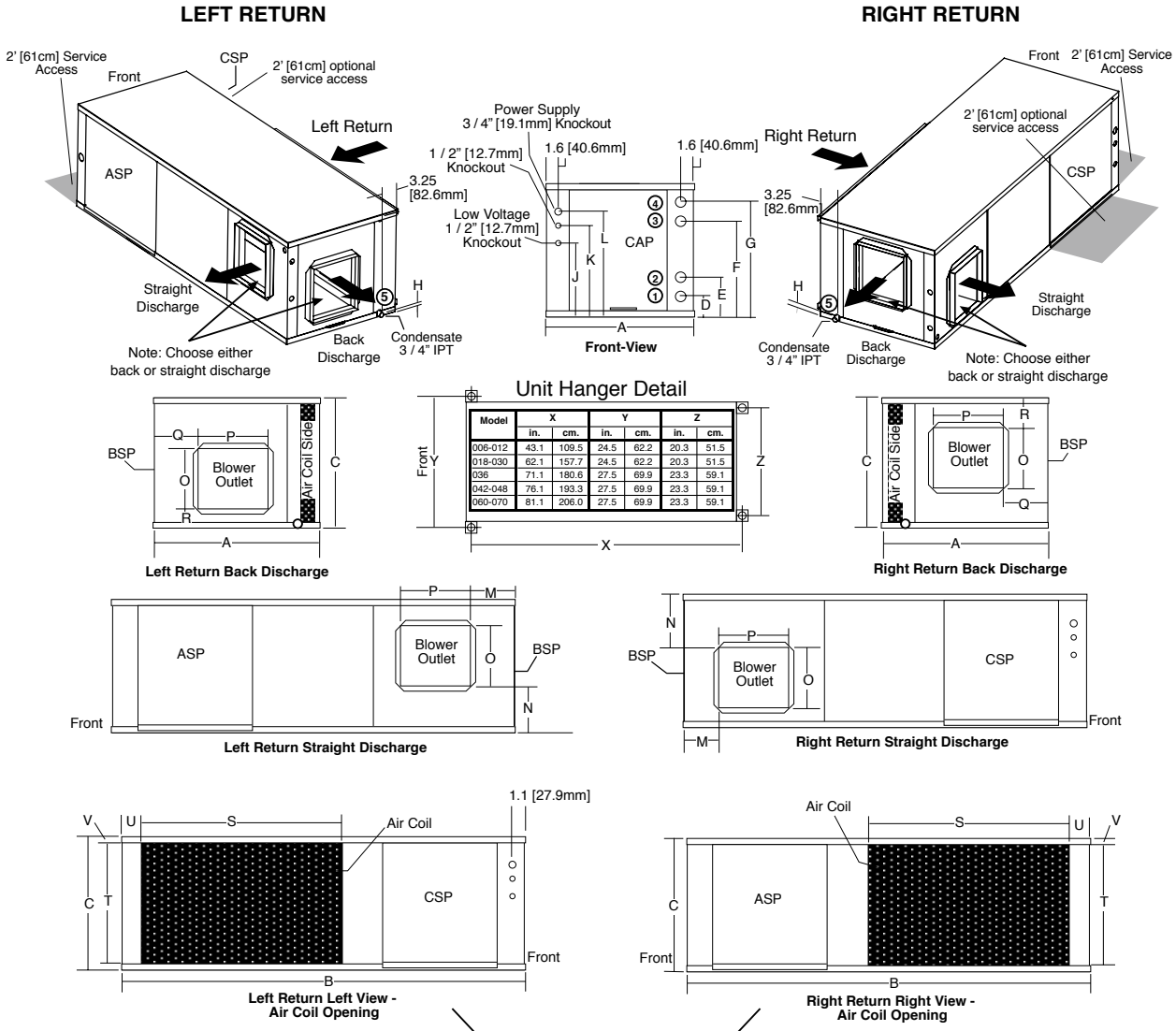
TS - Horizontal – Dimensional Data

Horizontal Model		Discharge Connection Duct Flange Installed						Return Connection Using Return Air Opening				Return Connection Using Optional Air Filter Frame			
		M	N	O Supply Height	P Supply Width	Q	R	S Return Width	T Return Height	U	V	S Return Width	T Return Height	U	V
006 - 012	in	5.3	4.1	9.0	9.0	5.3	4.1	17.1	15.3	2.1	1.0	17.7	14.2	2.3	1.7
	cm	13.4	10.3	22.5	22.5	13.4	10.3	43.4	38.9	5.3	2.5	45.0	36.1	5.8	4.3
018	in	3.6	2.0	15.5	12.5	3.6	2.0	28.1	17.3	6.2	1.0	33.8	16.2	2.3	1.7
	cm	9.3	5.1	39.4	31.8	9.2	5.2	71.4	43.9	15.7	2.5	85.8	41.0	5.8	4.3
024 - 030	in	3.6	2.0	15.5	12.5	3.6	2.0	32.1	17.3	2.3	1.0	33.8	16.2	2.3	1.7
	cm	9.3	5.1	39.4	31.8	9.2	5.2	81.5	43.9	5.8	2.5	85.8	41.0	5.8	4.3
036	in	*3.1	1.2	19.0	17.5	*3.1	1.0	36.1	19.3	2.3	1.0	34.8	18.2	3.1	1.7
	cm	7.9	3.1	48.3	44.5	7.9	2.6	91.7	49.0	5.7	2.5	88.3	46.1	7.8	4.3
042 - 048	in	3.1	1.2	19.0	17.5	3.1	1.0	41.1	19.3	2.3	1.0	39.8	18.2	3.1	1.7
	cm	7.9	3.1	48.3	44.5	7.9	2.6	104.4	49.0	5.7	2.5	101.0	46.1	7.8	4.3
060 - 070	in	3.1	1.2	19.0	17.5	3.1	1.0	46.1	19.3	2.3	1.0	44.8	18.2	3.1	1.7
	cm	7.9	3.1	48.3	44.5	7.9	2.6	117.1	49.0	57	2.5	113.7	46.1	7.8	4.3

*For units with modulating reheat option this dimension is 2.9" (7.4 cm).
All dimensions +/- 0.20 in. (5.1 mm).



See Aff ---- for accessory air filter frame with duct collar

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TS - Vertical Upflow – Dimensional Data

Vertical Upflow Model		Overall Cabinet		
		*A Width	B Depth	C Height
006 - 012	in	22.4	21.6	34.5
	cm	56.8	54.9	87.6
018	in	22.4	25.6	44.6
	cm	56.8	65.1	113.3
024 - 030	in	22.4	25.6	48.5
	cm	56.8	65.1	123.2
036	in	25.4	30.6	50.5
	cm	64.5	77.8	128.3
042 - 048	in	25.4	30.6	54.5
	cm	64.5	77.8	138.4
060 - 070	in	25.4	30.6	58.5
	cm	64.5	77.8	148.6

*Does not include air filter supports. Add 2” (5.1cm) when a 1” (25.4mm) filter is used, add 3” (7.6cm) when a 2” (50.8mm) filter is used.

Vertical Upflow Model		Water Connections						
		1	2	3	4	5		
		Loop In D	Loop Out E	HWG In F	HWG Out G	H	Water Loop FPT	HWG FPT
006 - 012	in	3.7	9.7	N/A	N/A	7.4	1/2”	N/A
	cm	9.4	24.6			18.7		
018	in	2.1	10.0	13.9	16.9	7.8	3/4”	1/2”
	cm	5.2	25.4	35.2	42.9	19.8		
024 - 030	in	2.1	10.0	13.9	16.9	7.8	3/4”	1/2”
	cm	5.2	25.4	35.2	42.9	19.8		
036	in	3.4	10.8	15.6	18.9	7.8	3/4”	1/2”
	cm	8.6	27.5	39.7	47.9	19.8		
042 - 048	in	3.4	10.8	15.6	18.9	7.8	1”	1/2”
	cm	8.6	27.5	39.7	47.9	19.8		
060 - 070	in	3.4	10.8	15.6	18.9	7.8	1”	1/2”
	cm	8.6	27.5	39.7	47.9	19.8		

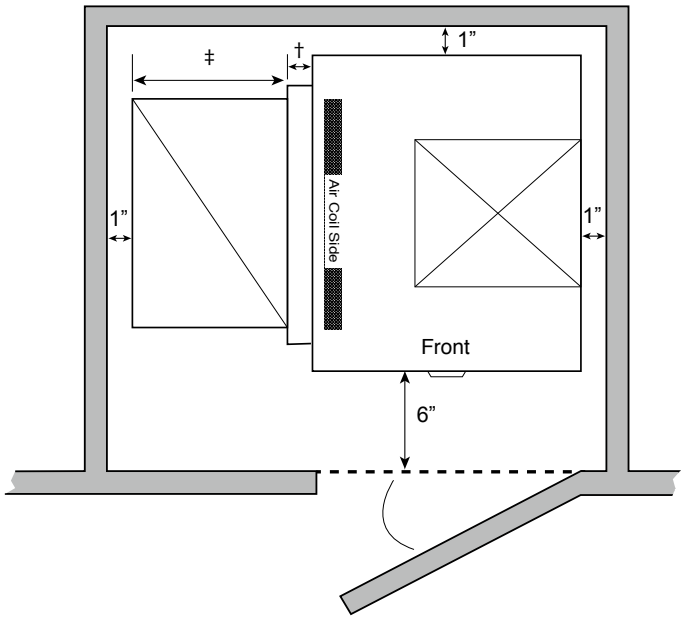
Vertical Upflow Model		Electrical Knockouts		
		J 1/2”	K 1/2”	L 3/4”
		Low Voltage	External Pump	Power Supply
006 - 012	in	3.8	6.3	8.8
	cm	9.5	15.9	22.2
018	in	3.6	6.1	8.6
	cm	9.2	15.6	21.9
024 - 030	in	3.6	6.1	8.6
	cm	9.2	15.6	21.9
036	in	3.6	6.1	8.6
	cm	9.2	15.6	21.9
042 - 048	in	3.6	6.1	8.6
	cm	9.2	15.6	21.9
060 - 070	in	3.6	6.1	8.6
	cm	9.2	15.6	21.9

Notes:
1. While clear access to all removable panels is not required, installer should take care to comply with all building codes and allow adequate clearance for future field service.
2. Front & Side access is preferred for service access. However, all components may be serviced from the front access panel if side access is not available.
3. Discharge flange is field installed.
4. Condensate is 3/4” FPT PVC and is switchable from front to side.

Legend:
CAP = Control Access Panel
BSP = Blower Service Panel
CSP = Compressor Access Panel
ASP = Alternative Service Panel

Recommended Minimum Installation Clearances for Vertical Units*	
1”	Back of unit
	Side opposite return air
6”	Front if hard piped
Return Air Side	
1”	Ducted return - ‡ Add for duct width - † Add 2” for 1” filter frame/rail or 3” for 2” filter frame/rail
	Free (open) return - calculate required dimension for a maximum velocity of 600 fpm

*Field installed accessories (hoses, air cleaners, etc.) may require additional space.



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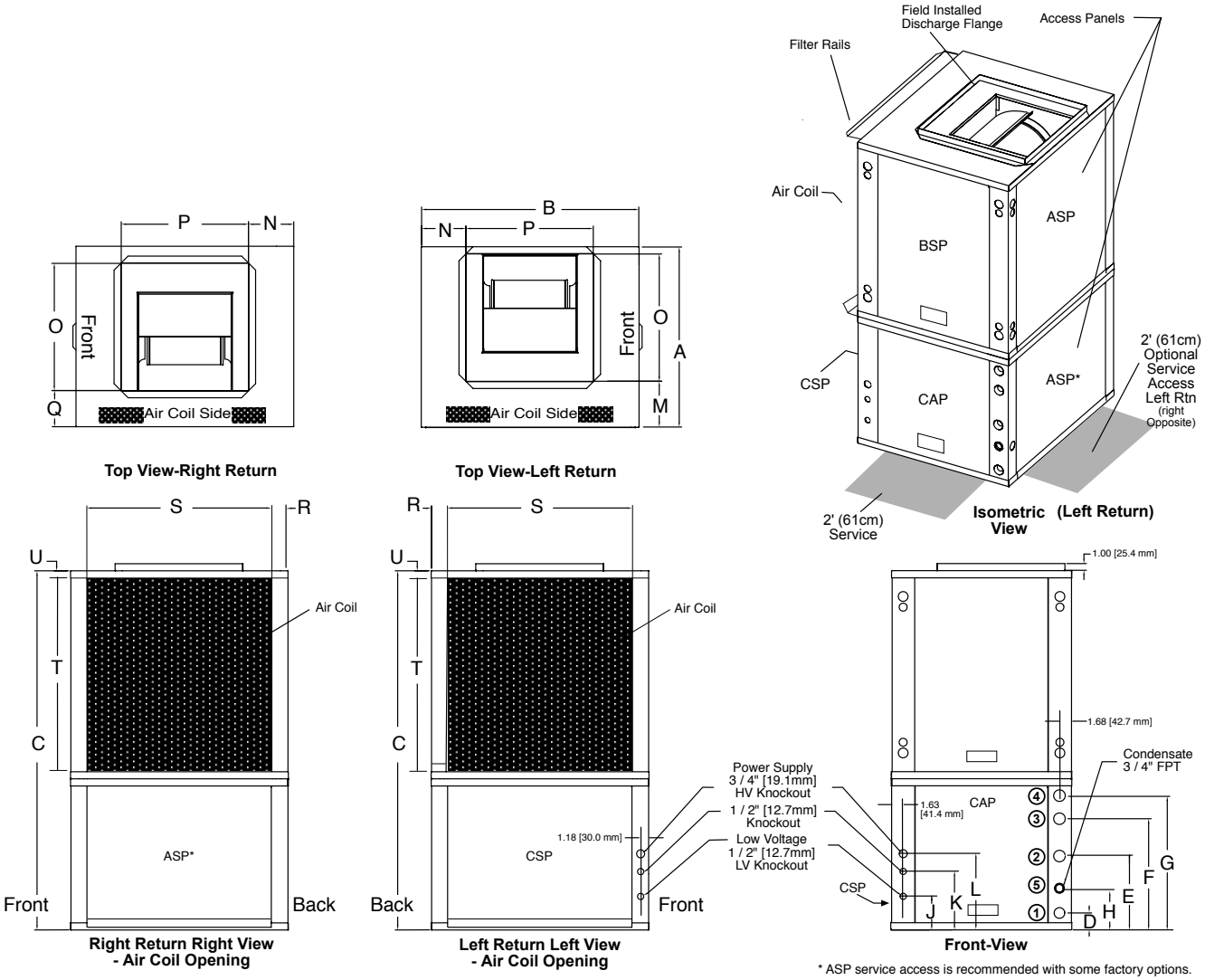
TS - Vertical Upflow – Dimensional Data

Vertical Upflow Model		Discharge Connection Duct Flange Installed					Return Connection Using Return Air Opening				Return Connection Using Optional Air Filter Frame			
		M	N	O Supply Width	P Supply Depth	Q	R	S Return Depth	T Return Height	U	R	S Return Depth	T Return Height	U
006 - 012	in	6.7	6.3	9.0	9.0	6.7	2.3	17.1	15.3	1.0	1.7	17.7	14.2	1.7
	cm	17.0	16.0	22.9	22.9	17.0	5.8	43.3	38.9	2.5	4.3	45.0	36.1	4.3
018	in	7.2	5.8	14.0	14.0	4.9	2.3	21.1	23.7	1.0	1.7	22.2	22.2	1.7
	cm	18.3	14.8	35.6	35.6	12.4	5.8	53.6	60.2	2.5	4.3	56.4	66.5	4.3
024 - 030	in	7.2	5.8	14.0	14.0	4.9	2.3	21.1	27.7	1.0	1.7	22.2	26.2	1.7
	cm	18.3	14.8	35.6	35.6	12.4	5.8	53.6	70.4	2.5	4.3	56.4	66.5	4.3
036	in	6.4	6.3	18.0	18.0	5.3	2.3	26.1	27.7	1.0	1.7	27.2	26.2	1.7
	cm	16.1	16.0	45.7	45.7	13.5	5.8	66.3	70.4	2.5	4.3	69.1	66.5	4.3
042 - 048	in	6.4	6.3	18.0	18.0	5.3	2.3	26.1	31.7	1.0	1.7	27.2	30.2	1.7
	cm	16.1	16.0	45.7	45.7	13.5	5.8	66.3	80.5	2.5	4.3	69.1	76.7	4.3
060 - 070	in	6.4	6.3	18.0	18.0	5.3	2.3	26.1	35.7	1.0	1.7	27.2	34.2	1.7
	cm	16.1	16.0	45.7	45.7	13.5	5.8	66.3	90.7	2.5	4.3	69.1	86.9	4.3

All dimensions +/- .20 in, (+/- 5.1mm).



* ASP service access is recommended with some factory options.

Filter Rails Removed

See Aff ---- for accessory air filter frame with duct collar

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TS - Vertical Downflow – Dimensional Data

Vertical Downflow Model		Overall Cabinet		
		*A Width	B Depth	C Height
018	in	22.4	25.6	48.4
	cm	56.8	65.1	122.9
024 - 030	in	22.4	25.6	52.5
	cm	56.8	65.1	133.4
036	in	25.4	30.6	54.5
	cm	64.5	77.8	138.4
042 - 048	in	25.4	30.6	58.5
	cm	64.5	77.8	148.6
060 - 070	in	25.4	30.6	62.5
	cm	64.5	77.8	158.8

*Does not include air filter supports. Add 2" (5.1cm) when a 1" (25.4mm) filter is used, add 3" (7.6cm) when a 2" (50.8mm) filter is used.

Vertical Downflow Model		Water Connections						
		1	2	3	4	5		
		Loop In D	Loop Out E	HWG In F	HWG Out G	H	Water Loop FPT	HWG FPT
018	in	17.2	9.3	5.4	2.4	3.6	3/4"	1/2"
	cm	43.7	23.6	13.7	6.1	9.2		
024 - 030	in	17.9	10.5	5.7	2.4	3.6	3/4"	1/2"
	cm	45.5	26.7	14.5	6.1	9.2		
036	in	17.9	10.5	5.7	2.4	3.6	3/4"	1/2"
	cm	45.5	26.7	14.5	6.1	9.2		
042 - 048	in	17.9	10.5	5.7	2.4	3.6	1"	1/2"
	cm	45.5	26.7	14.5	6.1	9.2		
060 - 070	in	17.9	10.5	5.7	2.4	3.6	1"	1/2"
	cm	45.5	26.7	14.5	6.1	9.2		

Vertical Downflow Model		Electrical Knockouts		
		J 1/2"	K 1/2"	L 3/4"
		Low Voltage	External Pump	Power Supply
018	in	3.6	6.1	8.6
	cm	9.2	15.6	21.9
024 - 030	in	3.6	6.1	8.6
	cm	9.2	15.6	21.9
036	in	3.6	6.1	8.6
	cm	9.2	15.6	21.9
042 - 048	in	3.6	6.1	8.6
	cm	9.2	15.6	21.9
060 - 070	in	3.6	6.1	8.6
	cm	9.2	15.6	21.9

Notes:
1. While clear access to all removable panels is not required, installer should take care to comply with all building codes and allow adequate clearance for future field service.
2. Front & Side access is preferred for service access. However, all components may be serviced from the front access panel if side access is not available.
3. Condensate is 3/4" FPT PVC and is switchable from front to side.

Legend:
CAP = Control Access Panel
BSP = Blower Service Panel
CSP = Compressor Access Panel
ASP = Alternative Service Panel

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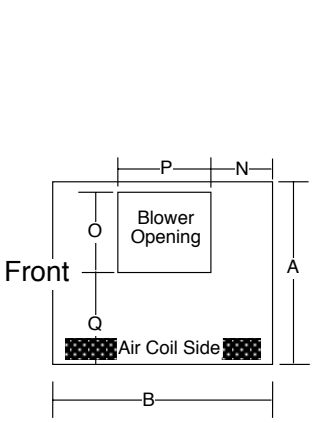
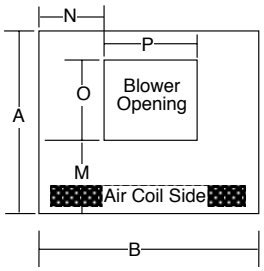
TS - Vertical Downflow – Dimensional Data

Vertical Downflow Model		Discharge Connection Duct Flange Installed					Return Connection Using Return Air Opening				Return Connection Using Optional Air Filter Frame			
		M	N	O Supply Width	P Supply Depth	Q	R	S Return Depth	T Return Height	U	R	S Return Depth	T Return Height	U
018	in	6.7	8.4	10.1	9.1	10.8	2.2	21.1	23.7	21.2	1.7	22.2	22.2	21.9
	cm	17.1	21.4	25.7	23.0	27.4	5.6	53.6	60.2	53.8	4.3	56.4	56.4	55.6
024 - 030	in	6.7	8.4	10.1	9.1	10.8	2.2	21.1	27.7	21.2	1.7	22.2	26.2	21.9
	cm	17.1	21.4	25.7	23.0	27.4	5.6	53.6	70.4	53.8	4.3	56.4	66.5	55.6
036	in	7.2	9.0	13.4	12.9	10.4	2.2	26.1	27.7	23.2	1.7	27.2	26.2	23.9
	cm	18.3	22.9	34.0	32.7	26.5	5.6	66.3	70.4	58.9	4.3	69.1	66.5	60.7
042 - 048	in	7.2	9.0	13.4	12.9	10.4	2.2	26.1	31.7	23.2	1.7	27.2	30.2	23.9
	cm	18.3	22.9	34.0	32.7	26.5	5.6	66.3	80.5	58.9	4.3	69.1	76.7	60.7
060 - 070	in	7.2	9.0	13.4	12.9	10.4	2.2	26.1	35.7	23.2	1.7	27.2	34.2	23.9
	cm	18.3	22.9	34.0	32.7	26.5	5.6	66.3	90.7	58.9	4.3	69.1	86.9	60.7

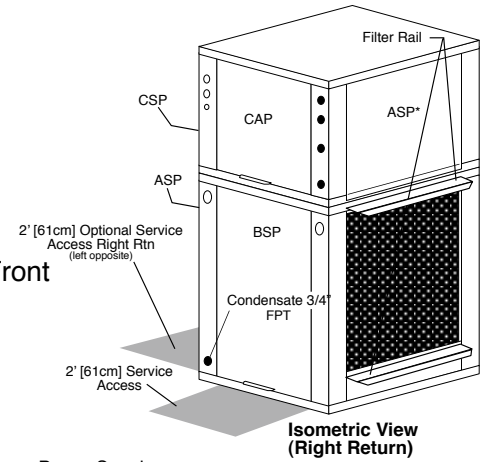
All dimensions +/- .20 in, (+/- 5.1mm).



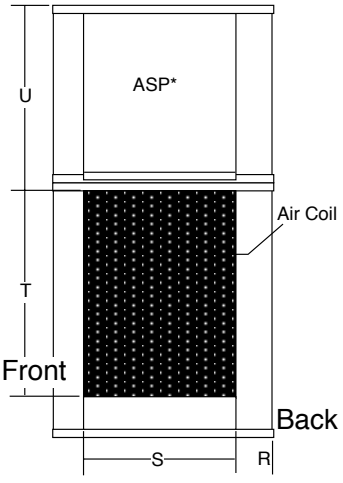
Right Return Discharge Floor Foot Print



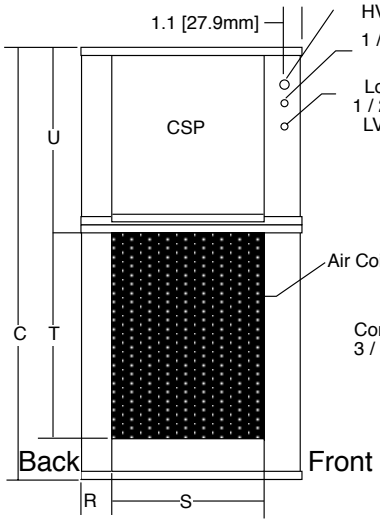
Left Return Discharge Floor Foot Print



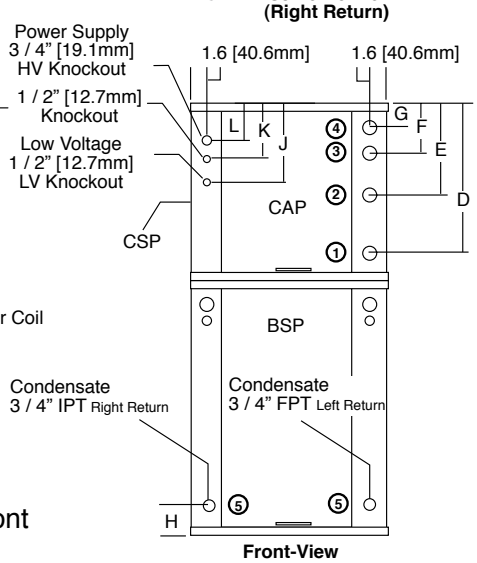
Isometric View (Right Return)



Right Return Right View - Air Coil Opening



Left Return Left View - Air Coil Opening



Front-View

* ASP service access is recommended with some factory options.

Filter Rails Removed

See Aff ---- for accessory air filter frame with duct collar

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Corner Weights for TSH Series Units

Model		Total	Left-Front*	Right-Front*	Left-Back*	Right-Back*
006	Lbs	136	45.0	30.0	33.0	28.0
	kg	62	20.4	13.6	15.0	12.7
009	Lbs	156	55.0	33.0	36.0	32.0
	kg	71	24.9	15.0	16.3	14.5
012	Lbs	160	56.0	34.0	37.0	33.0
	kg	73	25.4	15.4	16.8	15.0
018	Lbs	257	78.1	64.6	66.2	47.5
	kg	117	35.4	29.3	30.0	21.6
024	Lbs	266	78.8	67.2	69.9	50.2
	kg	122	35.7	30.5	31.7	22.7
030	Lbs	268	79.4	67.7	70.4	50.5
	kg	122	36.0	30.7	31.9	22.9
036	Lbs	327	104.4	74.9	83.7	64.0
	kg	148	47.4	34.0	38.0	29.0
042	Lbs	414	144.3	92.1	97.7	79.9
	kg	188	65.4	41.8	44.3	36.2
048	Lbs	416	145.0	92.6	98.1	80.3
	kg	189	65.8	42.0	44.5	36.4
060	Lbs	441	182.3	72.5	78.4	107.8
	kg	200	82.7	32.9	35.6	48.9
070	Lbs	443	183.1	72.8	78.8	108.3
	kg	201	83.1	33.0	35.7	49.1

*Front is control box end.

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Electrical Data – PSC Motor & ClimaDry®

All TS Units with Standard PSC Motor								TS Units (PSC)			TS Units with PSC Fan Motor and ClimaDry®			
Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor			Fan Motor FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/ HACR	Reheat Pump FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/ HACR
				QTY	RLA	LRA								
018	G	208-230/60/1	197/254	1	9.0	48.0	1.0	10.0	12.3	20	0.8	10.8	13.1	20
	E	265/60/1	239/292	1	8.4	40.0	0.9	9.3	11.4	15	0.7	10.0	12.1	20
024	G	208-230/60/1	197/254	1	12.8	60.0	1.1	13.9	17.1	25	0.8	14.7	17.9	30
	E	265/60/1	239/292	1	10.9	58.0	0.9	11.8	14.5	25	0.7	12.5	15.2	25
	H	208-230/60/3	197/254	1	8.0	55.0	1.1	9.1	11.1	15	0.8	9.9	11.9	15
	F*	460/60/3*	414/506	1	4.0	22.4	0.6	4.6	5.6	15	0.7	5.3	6.3	15
030	G	208-230/60/1	197/254	1	13.5	61.0	1.4	14.9	18.3	30	0.8	15.7	19.1	30
	E	265/60/1	239/292	1	10.9	58.0	1.6	12.5	15.2	25	0.7	13.2	15.9	25
	H	208-230/60/3	197/254	1	8.3	63.0	1.4	9.7	11.8	20	0.8	10.5	12.6	20
	F*	460/60/3*	414/506	1	4.5	27.0	0.9	5.4	6.5	15	0.7	6.1	7.2	15
036	G	208-230/60/1	197/254	1	14.7	72.5	2.1	16.8	20.5	35	0.8	17.6	21.3	35
	E	265/60/1	239/292	1	12.5	61.0	2.2	14.7	17.8	30	0.7	15.4	18.5	30
	H	208-230/60/3	197/254	1	10.4	63.0	2.1	12.5	15.1	25	0.8	13.3	15.9	25
	F*	460/60/3*	414/506	1	4.5	32.0	1.3	5.8	6.9	15	0.7	6.5	7.6	15
042	G	208-230/60/1	197/254	1	15.4	83.0	2.1	17.5	21.4	35	0.8	18.3	22.2	35
	H	208-230/60/3	197/254	1	11.5	77.0	2.1	13.6	16.5	25	0.8	14.4	17.3	25
	F*	460/60/3*	414/506	1	5.1	35.0	1.0	6.1	7.4	15	0.7	6.8	8.1	15
	N	575/60/3	518/633	1	4.3	31.0	0.8	5.1	6.2	15	N/A	N/A	N/A	N/A
048	G	208-230/60/1	197/254	1	20.5	109.0	3.0	23.5	28.6	45	1.07	24.6	29.7	50
	H	208-230/60/3	197/254	1	14.6	91.0	3.0	17.6	21.3	35	1.07	18.7	22.3	35
	F*	460/60/3*	414/506	1	7.1	46.0	1.7	8.8	10.6	15	1.07	9.9	11.6	15
	N	575/60/3	518/633	1	5.1	34.1	1.4	6.5	7.8	15	N/A	N/A	N/A	N/A
060	G	208-230/60/1	197/254	1	26.9	145.0	4.9	31.8	38.5	60	1.07	32.9	39.6	60
	H	208-230/60/3	197/254	1	17.6	123.0	4.9	22.5	26.9	40	1.07	23.6	28.0	45
	F*	460/60/3*	414/506	1	9.6	64.0	2.5	12.1	14.5	20	1.07	13.2	15.6	25
	N	575/60/3	518/633	1	6.1	40.0	1.9	8.0	9.5	15	N/A	N/A	N/A	N/A
070	G	208-230/60/1	197/254	1	30.1	158.0	5.8	35.9	43.4	70	1.07	37.0	44.5	70
	H	208-230/60/3	197/254	1	20.5	155.0	5.8	26.3	31.4	50	1.07	27.4	32.5	50
	F*	460/60/3*	414/506	1	9.6	75.0	2.6	12.2	14.6	20	1.07	13.3	15.7	25
	N	575/60/3	518/633	1	7.6	54.0	2.3	9.9	11.8	15	N/A	N/A	N/A	N/A

* NEUTRAL CONNECTION REQUIRED! All F Voltage (460 vac) units with ClimaDry® require a four wire power supply with neutral.
Reheat pump is rated 265 vac and is wired between one hot leg and neutral.

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Electrical Data – High Static PSC Motor & ClimaDry®

All TS Units with High Static PSC Fan Motor								TS (H.S. PSC) Units			TS Units with H.S. PSC Fan Motor and ClimaDry®			
Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor			Fan Motor FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/ HACR	Reheat Pump FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/ HACR
				QTY	RLA	LRA								
018	G	208-230/60/1	197/254	1	9.0	48.0	1.1	10.1	12.4	20	0.8	10.9	13.2	20
	E	265/60/1	239/292	1	8.4	40.0	0.9	9.3	11.4	15	0.7	10.0	12.1	20
024	G	208-230/60/1	197/254	1	12.8	60.0	1.4	14.2	17.4	30	0.8	15.0	18.2	30
	E	265/60/1	239/292	1	10.9	58.0	1.6	12.5	15.2	25	0.7	13.2	15.9	25
	H	208-230/60/3	197/254	1	8.0	55.0	1.4	9.4	11.4	15	0.8	10.2	12.2	20
	F*	460/60/3*	414/506	1	4.0	22.4	0.9	4.9	5.9	15	0.7	5.6	6.6	15
030	G	208-230/60/1	197/254	1	13.5	61.0	1.8	15.3	18.7	30	0.8	16.1	19.5	30
	E	265/60/1	239/292	1	10.9	58.0	2.0	12.9	15.6	25	0.7	13.6	16.3	25
	H	208-230/60/3	197/254	1	8.3	63.0	1.8	10.1	12.2	20	0.8	10.9	13.0	20
	F*	460/60/3*	414/506	1	4.5	27.0	1.24	5.7	6.9	15	0.7	6.4	7.6	15
036	G	208-230/60/1	197/254	1	14.7	72.5	2.0	16.7	20.4	35	0.8	17.5	21.2	35
	E	265/60/1	239/292	1	12.5	61.0	2.2	14.7	17.8	30	0.7	15.4	18.5	30
	H	208-230/60/3	197/254	1	10.4	63.0	2.0	12.4	15.0	25	0.8	13.2	15.8	25
	F*	460/60/3*	414/506	1	4.5	32.0	1.0	5.5	6.6	15	0.7	6.2	7.3	15
042	G	208-230/60/1	197/254	1	15.4	83.0	3.0	18.4	22.3	35	0.8	19.2	23.1	35
	H	208-230/60/3	197/254	1	11.5	77.0	3.0	14.5	17.4	25	0.8	15.3	18.2	25
	F*	460/60/3*	414/506	1	5.1	35.0	1.7	6.8	8.1	15	0.7	7.5	8.8	15
	N	575/60/3	518/633	1	4.3	31.0	1.4	5.7	6.8	15	N/A	N/A	N/A	N/A
048	G	208-230/60/1	197/254	1	20.5	109.0	3.4	23.9	29.0	45	1.07	25.0	30.1	50
	H	208-230/60/3	197/254	1	14.6	91.0	3.4	18.0	21.7	35	1.07	19.1	22.7	35
	F*	460/60/3*	414/506	1	7.1	46.0	1.8	8.9	10.7	15	1.07	10.0	11.7	15
	N	575/60/3	518/633	1	5.1	34.1	1.4	6.5	7.8	15	N/A	N/A	N/A	N/A
060	G	208-230/60/1	197/254	1	26.9	145.0	5.8	32.7	39.4	60	1.07	33.8	40.5	60
	H	208-230/60/3	197/254	1	17.6	123.0	5.8	23.4	27.8	45	1.07	24.5	28.9	45
	F*	460/60/3*	414/506	1	9.6	64.0	2.6	12.2	14.6	20	1.07	13.3	15.7	25
	N	575/60/3	518/633	1	6.1	40.0	2.3	8.4	9.9	15	N/A	N/A	N/A	N/A

* NEUTRAL CONNECTION REQUIRED! All F Voltage (460 vac) units with ClimaDry® require a four wire power supply with neutral.
Reheat pump is rated 265 vac and is wired between one hot leg and neutral.

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Electrical Data – ECM Motor & ClimaDry®

All TS Units with ECM Fan Motor								TS Units (ECM)			TS Units with ECM Fan Motor and ClimaDry®			
Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor			Fan Motor FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/ HACR	Reheat Pump FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/ HACR
				QTY	RLA	LRA								
018	G	208-230/60/1	197/254	1	9.0	48.0	3.9	12.9	15.2	20	0.8	13.7	16.0	20
	E	265/60/1	239/292	1	8.4	40.0	3.2	11.6	13.7	20	0.7	12.3	14.4	20
024	G	208-230/60/1	197/254	1	12.8	60.0	3.9	16.7	19.9	30	0.8	17.5	20.7	30
	E	265/60/1	239/292	1	10.9	58.0	3.2	14.1	16.8	25	0.7	14.8	17.5	25
	H	208-230/60/3	197/254	1	8.0	55.0	3.9	11.9	13.9	20	0.8	12.7	14.7	20
	F*	460/60/3*	414/506	1	4.0	22.4	3.2	7.2	8.2	15	0.7	7.9	8.9	15
030	G	208-230/60/1	197/254	1	13.5	61.0	3.9	17.4	20.8	30	0.8	18.2	21.6	35
	E	265/60/1	239/292	1	10.9	58.0	3.2	14.1	16.8	25	0.7	14.8	17.5	25
	H	208-230/60/3	197/254	1	8.3	63.0	3.9	12.2	14.3	20	0.8	13.0	15.1	20
	F*	460/60/3*	414/506	1	4.5	27.0	3.2	7.7	8.8	15	0.7	8.4	9.5	15
036	G	208-230/60/1	197/254	1	14.7	72.5	3.9	18.6	22.3	35	0.8	19.4	23.1	35
	E	265/60/1	239/292	1	12.5	61.0	3.2	15.7	18.8	30	0.7	16.4	19.5	30
	H	208-230/60/3	197/254	1	10.4	63.0	3.9	14.3	16.9	25	0.8	15.1	17.7	25
	F*	460/60/3*	414/506	1	4.5	32.0	3.2	7.7	8.8	15	0.7	8.4	9.5	15
042	G	208-230/60/1	197/254	1	15.4	83.0	3.9	19.3	23.2	35	0.8	20.1	24.0	35
	H	208-230/60/3	197/254	1	11.5	77.0	3.9	15.4	18.3	25	0.8	16.2	19.1	30
	F*	460/60/3*	414/506	1	5.1	35.0	3.2	8.3	9.6	15	0.7	9.0	10.3	15
048	G	208-230/60/1	197/254	1	20.5	109.0	6.9	27.4	32.5	50	1.07	28.5	33.6	50
	H	208-230/60/3	197/254	1	14.6	91.0	6.9	21.5	25.2	35	1.07	22.6	26.2	40
	F*	460/60/3*	414/506	1	7.1	46.0	6.0	13.1	14.9	20	1.07	14.2	15.9	20
060	G	208-230/60/1	197/254	1	26.9	145.0	6.9	33.8	40.5	60	1.07	34.9	41.6	60
	H	208-230/60/3	197/254	1	17.6	123.0	6.9	24.5	28.9	45	1.07	25.6	30.0	45
	F*	460/60/3*	414/506	1	9.6	64.0	6.0	15.6	18.0	25	1.07	16.7	19.1	25
070	G	208-230/60/1	197/254	1	30.1	158.0	6.9	37.0	44.5	70	1.07	38.1	45.6	70
	H	208-230/60/3	197/254	1	20.5	155.0	6.9	27.4	32.5	50	1.07	28.5	33.6	50
	F*	460/60/3*	414/506	1	9.6	75.0	6.0	15.6	18.0	25	1.07	16.7	19.1	25

* NEUTRAL CONNECTION REQUIRED! All F Voltage (460 vac) units with ECM motors/ClimaDry® require a four wire power supply with neutral.
ECM motors/reheat pumps are rated 265 vac and are wired between one hot leg and neutral.

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Electrical Data – PSC Motor & Secondary Pump

All TS Units with Standard PSC Motor								TS Units (PSC)			TS Units with PSC Fan Motor and Secondary Pump			
Model	Voltage Code	Rated Voltage	Voltage Min/ Max	Compressor			Fan Motor FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/ HACR	Pump FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/ HACR
				QTY	RLA	LRA								
006	G	208-230/60/1	197/254	1	3.1	17.7	0.4	3.5	4.3	15	0.43	3.9	4.7	15
	E	265/60/1	239/292	1	2.6	13.5	0.4	3.0	3.6	15	0.7	3.7	4.3	15
009	G	208-230/60/1	197/254	1	3.9	21.0	0.4	4.3	5.3	15	0.43	4.8	5.7	15
	E	265/60/1	239/292	1	3.7	22.0	0.4	4.1	5.0	15	0.7	10.0	12.1	20
012	G	208-230/60/1	197/254	1	5.0	25.0	0.7	5.7	7.0	15	0.43	6.1	7.4	15
	E	265/60/1	239/292	1	4.5	22.0	0.7	5.2	6.4	15	N/A	N/A	N/A	N/A
018	G	208-230/60/1	197/254	1	9.0	48.0	1.0	10.0	12.3	20	0.43	10.4	12.7	20
	E	265/60/1	239/292	1	8.4	40.0	0.9	9.3	11.4	15	N/A	N/A	N/A	N/A
024	G	208-230/60/1	197/254	1	12.8	60.0	1.1	13.9	17.1	25	0.43	14.3	17.5	30
	E	265/60/1	239/292	1	10.9	58.0	0.9	11.8	14.5	25	0.7	12.5	15.2	25
	H	208-230/60/3	197/254	1	8.0	55.0	1.1	9.1	11.1	15	0.43	9.5	11.5	15
	F*	460/60/3*	414/506	1	4.0	22.4	0.6	4.6	5.6	15	0.7	6.1	7.2	15
030	G	208-230/60/1	197/254	1	13.5	61.0	1.4	14.9	18.3	30	0.8	15.7	19.1	30
	E	265/60/1	239/292	1	10.9	58.0	1.6	12.5	15.2	25	0.7	13.2	15.9	25
	H	208-230/60/3	197/254	1	8.3	63.0	1.4	9.7	11.8	20	0.8	10.5	12.6	20
	F*	460/60/3*	414/506	1	4.5	27.0	0.9	5.4	6.5	15	0.7	6.1	7.2	15
036	G	208-230/60/1	197/254	1	14.7	72.5	2.1	16.8	20.5	35	0.8	17.6	21.3	35
	E	265/60/1	239/292	1	12.5	61.0	2.2	14.7	17.8	30	0.7	15.4	18.5	30
	H	208-230/60/3	197/254	1	10.4	63.0	2.1	12.5	15.1	25	0.8	13.3	15.9	25
	F*	460/60/3*	414/506	1	4.5	32.0	1.3	5.8	6.9	15	0.7	6.5	7.6	15
042	G	208-230/60/1	197/254	1	15.4	83.0	2.1	17.5	21.4	35	0.8	18.3	22.2	35
	H	208-230/60/3	197/254	1	11.5	77.0	2.1	13.6	16.5	25	0.8	14.4	17.3	25
	F*	460/60/3*	414/506	1	5.1	35.0	1.0	6.1	7.4	15	0.7	6.8	8.1	15
	N	575/60/3	518/633	1	4.3	31.0	0.8	5.1	6.2	15	N/A	N/A	N/A	N/A
048	G	208-230/60/1	197/254	1	20.5	109.0	3.0	23.5	28.6	45	0.8	24.3	29.4	45
	H	208-230/60/3	197/254	1	14.6	91.0	3.0	17.6	21.3	35	0.8	18.4	22.1	35
	F*	460/60/3*	414/506	1	7.1	46.0	1.7	8.8	10.6	15	0.7	9.5	11.3	15
	N	575/60/3	518/633	1	5.1	34.1	1.4	6.5	7.8	15	N/A	N/A	N/A	N/A
060	G	208-230/60/1	197/254	1	26.9	145.0	4.9	31.8	38.5	60	1.07	32.9	39.6	60
	H	208-230/60/3	197/254	1	17.6	123.0	4.9	22.5	26.9	40	1.07	23.6	28.0	45
	F*	460/60/3*	414/506	1	9.6	64.0	2.5	12.1	14.5	20	1.07	13.2	15.6	25
	N	575/60/3	518/633	1	6.1	40.0	1.9	8.0	9.5	15	N/A	N/A	N/A	N/A
070	G	208-230/60/1	197/254	1	30.1	158.0	5.8	35.9	43.4	70	1.07	37.0	44.5	70
	H	208-230/60/3	197/254	1	20.5	155.0	5.8	26.3	31.4	50	1.07	27.4	32.5	50
	F*	460/60/3*	414/506	1	9.6	75.0	2.6	12.2	14.6	20	1.07	13.3	15.7	25
	N	575/60/3	518/633	1	7.6	54.0	2.3	9.9	11.8	15	N/A	N/A	N/A	N/A

* NEUTRAL CONNECTION REQUIRED! All F Voltage (460 vac) units with internal secondary circulators require a four wire power supply with neutral. Internal secondary circulators are rated 265 vac and are wired between one hot leg and neutral.

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Electrical Data – High Static PSC Motor & Secondary Pump

All TS Units with High Static PSC Fan Motor								TS (H.S. PSC) Units			TS Units with H.S. PSC Fan Motor and Secondary Pump			
Model	Voltage Code	Rated Voltage	Voltage Min/ Max	Compressor			Fan Motor FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/ HACR	Pump FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/ HACR
				QTY	RLA	LRA								
018	G	208-230/60/1	197/254	1	9.0	48.0	1.1	10.1	12.4	20	0.43	10.5	12.8	20
	E	265/60/1	239/292	1	8.4	40.0	0.9	9.3	11.4	15	0.7	10.0	12.1	20
024	G	208-230/60/1	197/254	1	12.8	60.0	1.4	14.2	17.4	30	0.43	14.6	17.8	30
	E	265/60/1	239/262	1	10.9	58.0	1.6	12.5	15.2	25	0.7	13.2	15.9	25
	H	208-230/60/3	197/254	1	8.0	55.0	1.4	9.4	11.4	15	0.43	9.8	11.8	15
	F*	460/60/3*	414/506	1	4.0	22.4	0.9	4.9	5.9	15	0.7	5.6	6.6	15
030	G	208-230/60/1	197/254	1	13.5	61.0	1.8	15.3	18.7	30	0.8	16.1	19.5	30
	E	265/60/1	239/292	1	10.9	58.0	2.0	12.9	15.6	25	0.7	13.6	16.3	25
	H	208-230/60/3	197/254	1	8.3	63.0	1.8	10.1	12.2	20	0.8	10.9	13.0	20
	F*	460/60/3*	414/506	1	4.5	27.0	1.24	5.7	6.9	15	0.7	6.4	7.6	15
036	G	208-230/60/1	197/254	1	14.7	72.5	2.0	16.7	20.4	35	0.8	17.5	21.2	35
	E	265/60/1	239/292	1	12.5	61.0	2.2	14.7	17.8	30	0.7	15.4	18.5	30
	H	208-230/60/3	197/254	1	10.4	63.0	2.0	12.4	15.0	25	0.8	13.2	15.8	25
	F*	460/60/3*	414/506	1	4.5	32.0	1.0	5.5	6.6	15	0.7	6.2	7.3	15
042	G	208-230/60/1	197/254	1	15.4	83.0	3.0	18.4	22.3	35	0.8	19.2	23.1	35
	H	208-230/60/3	197/254	1	11.5	77.0	3.0	14.5	17.4	25	0.8	15.3	18.2	25
	F*	460/60/3*	414/506	1	5.1	35.0	1.7	6.8	8.1	15	0.7	7.5	8.8	15
	N	575/60/3	518/633	1	4.3	31.0	1.4	5.7	6.8	15	N/A	N/A	N/A	N/A
048	G	208-230/60/1	197/254	1	20.5	109.0	3.4	23.9	29.0	45	0.8	24.7	29.8	50
	H	208-230/60/3	197/254	1	14.6	91.0	3.4	18.0	21.7	35	0.8	18.8	22.5	35
	F*	460/60/3*	414/506	1	7.1	46.0	1.8	8.9	10.7	15	0.7	9.6	11.4	15
	N	575/60/3	518/633	1	5.1	34.1	1.4	6.5	7.8	15	N/A	N/A	N/A	N/A
060	G	208-230/60/1	197/254	1	26.9	145.0	5.8	32.7	39.4	60	1.07	33.8	40.5	60
	H	208-230/60/3	197/254	1	17.6	123.0	5.8	23.4	27.8	45	1.07	24.5	28.9	45
	F*	460/60/3*	414/506	1	9.6	64.0	2.6	12.2	14.6	20	1.07	13.3	15.7	25
	N	575/60/3	518/633	1	6.1	40.0	2.3	8.4	9.9	15	N/A	N/A	N/A	N/A

* NEUTRAL CONNECTION REQUIRED! All F Voltage (460 vac) units with internal secondary circulators require a four wire power supply with neutral. Internal secondary circulators are rated 265 vac and are wired between one hot leg and neutral.

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Electrical Data – ECM Motor & Secondary Pump

All TS Units with ECM Fan Motor								TS Units (ECM)			TS Units with ECM Fan Motor and Secondary Pump			
Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor			Fan Motor FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/ HACR	Pump FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/ HACR
				QTY	RLA	LRA								
018	G	208-230/60/1	197/254	1	9.0	48.0	3.9	12.9	15.2	20	0.43	13.3	15.6	20
	E	265/60/1	239/292	1	8.4	40.0	3.2	11.6	13.7	20	0.7	12.3	14.4	20
024	G	208-230/60/1	197/254	1	12.8	60.0	3.9	16.7	19.9	30	0.43	17.1	20.3	30
	E	265/60/1	239/292	1	10.9	58.0	3.2	14.1	16.8	25	0.7	14.8	17.5	25
	H	208-230/60/3	197/254	1	8.0	55.0	3.9	11.9	13.9	20	0.43	12.3	14.3	20
	F*	460/60/3*	414/506	1	4.0	22.4	3.2	7.2	8.2	15	0.7	7.9	8.9	15
030	G	208-230/60/1	197/254	1	13.5	61.0	3.9	17.4	20.8	30	0.8	18.2	21.6	35
	E	265/60/1	239/292	1	10.9	58.0	3.2	14.1	16.8	25	0.7	14.8	17.5	25
	H	208-230/60/3	197/254	1	8.3	63.0	3.9	12.2	14.3	20	0.8	13.0	15.1	20
	F*	460/60/3*	414/506	1	4.5	27.0	3.2	7.7	8.8	15	0.7	8.4	9.5	15
036	G	208-230/60/1	197/254	1	14.7	72.5	3.9	18.6	22.3	35	0.8	19.4	23.1	35
	E	265/60/1	239/292	1	12.5	61.0	3.2	15.7	18.8	30	0.7	16.4	19.5	30
	H	208-230/60/3	197/254	1	10.4	63.0	3.9	14.3	16.9	25	0.8	15.1	17.7	25
	F*	460/60/3*	414/506	1	4.5	32.0	3.2	7.7	8.8	15	0.7	8.4	9.5	15
042	G	208-230/60/1	197/254	1	15.4	83.0	3.9	19.3	23.2	35	0.8	20.1	24.0	35
	H	208-230/60/3	197/254	1	11.5	77.0	3.9	15.4	18.3	25	0.8	16.2	19.1	30
	F*	460/60/3*	414/506	1	5.1	35.0	3.2	8.3	9.6	15	0.7	9.0	10.3	15
048	G	208-230/60/1	197/254	1	20.5	109.0	6.9	27.4	32.5	50	0.8	28.5	33.6	50
	H	208-230/60/3	197/254	1	14.6	91.0	6.9	21.5	25.2	35	0.8	22.6	26.2	40
	F*	460/60/3*	414/506	1	7.1	46.0	6.0	13.1	14.9	20	0.7	14.2	15.9	20
060	G	208-230/60/1	197/254	1	26.9	145.0	6.9	33.8	40.5	60	1.07	34.9	41.6	60
	H	208-230/60/3	197/254	1	17.6	123.0	6.9	24.5	28.9	45	1.07	25.6	30.0	45
	F*	460/60/3*	414/506	1	9.6	64.0	6.0	15.6	18.0	25	1.07	16.7	19.1	25
070	G	208-230/60/1	197/254	1	30.1	158.0	6.9	37.0	44.5	70	1.07	38.1	45.6	70
	H	208-230/60/3	197/254	1	20.5	155.0	6.9	27.4	32.5	50	1.07	28.5	33.6	50
	F*	460/60/3*	414/506	1	9.6	75.0	6.0	15.6	18.0	25	1.07	16.7	19.1	25

* NEUTRAL CONNECTION REQUIRED! All F Voltage (460 vac) units with ECM motors/internal secondary circulators require a four wire power supply with neutral. ECM motors/internal secondary circulators are rated 265 vac and are wired between one hot leg and neutral.

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TS Series Wiring Diagram Matrix

Only CXM and DXM diagrams, with a representative diagram of LON and MPC Options are presented in this submittal.
Other diagrams can be located online at climatemaster.com using the part numbers presented below.

Model	Refrigerant	Wiring Diagram Part Number	Electrical	Control	DDC	Fan Motor
TS Series Single Phase	EarthPure® HFC-410A	96B0006N18	208-230/60/1 265/60/1	CXM	-	ECM
		96B0006N16			LON	
		96B0006N14			MPC	
		96B0006N24			-	PSC
		96B0006N22			LON	
		96B0006N20			MPC	
		96B0006N19		DXM	-	ECM
		96B0006N17			LON	
		96B0006N15			MPC	
		96B0038N66			ClimaDry®	
		96B0006N25			-	PSC
		96B0006N23			LON	
		96B0006N21			MPC	
		96B0006N33			ClimaDry®	
TS Series Three Phase (230 Style)	EarthPure® HFC-410A	96B0007N18	208-230/60/3	CXM	-	ECM
		96B0007N16			LON	
		96B0007N14			MPC	
		96B0007N24			-	PSC
		96B0007N22			LON	
		96B0007N20			MPC	
		96B0007N19		DXM	-	ECM
		96B0007N17			LON	
		96B0007N15			MPC	
		96B0007N29			ClimaDry®	
		96B0007N25			-	PSC
		96B0007N23			LON	
		96B0007N21			MPC	
		96B0007N30			ClimaDry®	
TS Series Three Phase (460 Style)	EarthPure® HFC-410A	96B0008N18	460/60/3	CXM	-	ECM
		96B0008N16			LON	
		96B0008N14			MPC	
		96B0008N24			-	PSC
		96B0008N22			LON	
		96B0008N20			MPC	
		96B0008N19		DXM	-	ECM
		96B0008N17			LON	
		96B0008N15			MPC	
		96B0008N25			-	PSC
		96B0008N23			LON	
		96B0008N21			MPC	

All wiring diagrams available at climatemaster.com.

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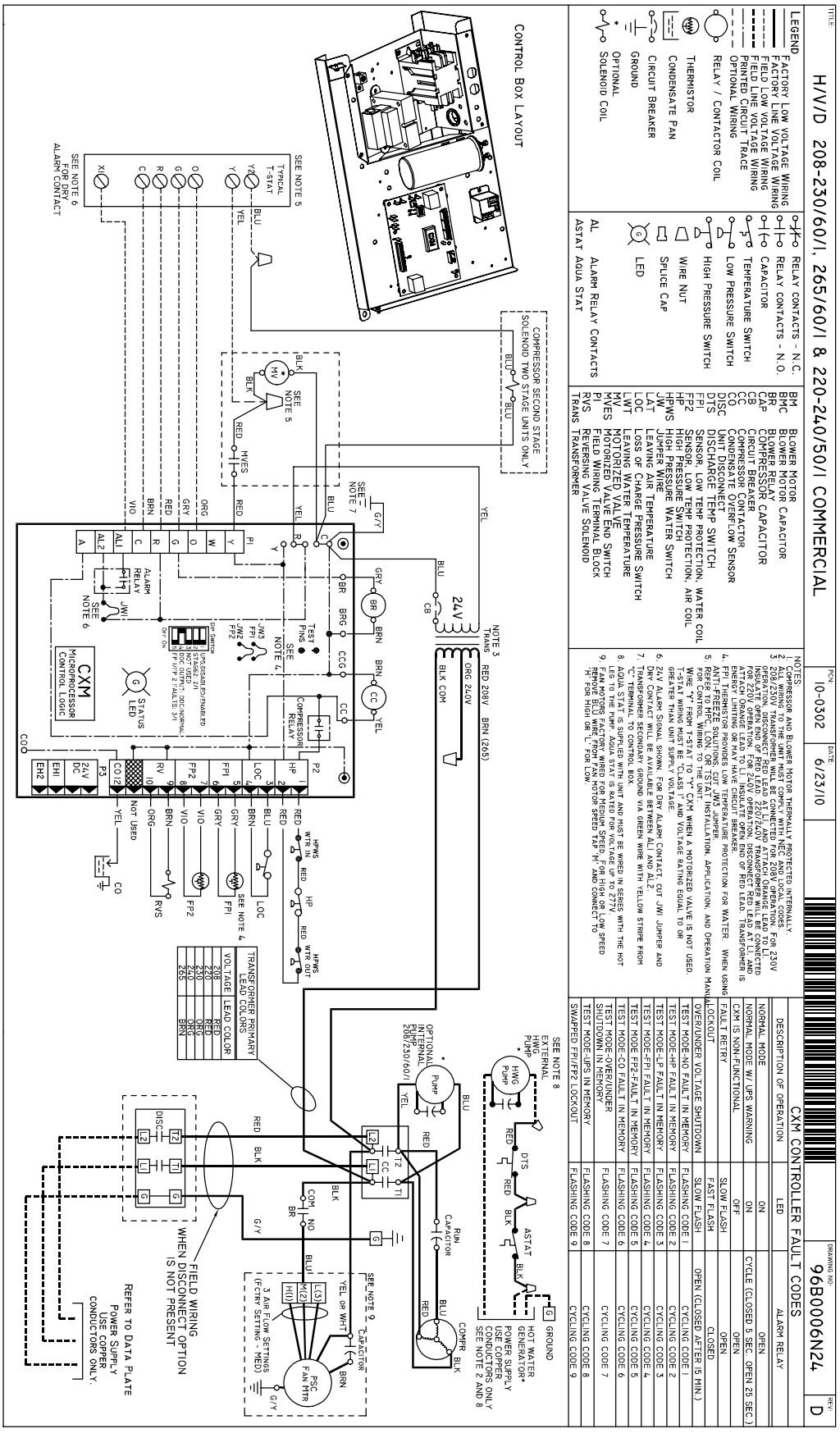
Typical Wiring Diagram – Single Phase TS Units with CXM Controller


TITLE:
H/V/D 208-230/60/1, 265/60/1 & 220-240/50/1 COMMERCIAL
PCN: 10-0302
DATE: 6/23/10
DRAWING NO: 96B0006N24
REV: D
LEGEND
FACTORY LOW VOLTAGE WIRING
FACTORY LINE VOLTAGE WIRING
FIELD LOW VOLTAGE WIRING
FIELD LINE VOLTAGE WIRING
PRINTED CIRCUIT TRACE
OPTIONAL WIRING
RELAY / CONTACTOR COIL
THERMISTOR
CONDENSATE PAN
CIRCUIT BREAKER
GROUND
OPTIONAL SOLENOID COIL
RELAY CONTACTS - N.C.
RELAY CONTACTS - N.O.
CAPACITOR
TEMPERATURE SWITCH
LOW PRESSURE SWITCH
HIGH PRESSURE SWITCH
WIRE NUT
SPLICE CAP
LED
ALARM RELAY CONTACTS
ASTAT AQUA STAT
BM BLOWER MOTOR
BMC BLOWER MOTOR CAPACITOR
BR BLOWER RELAY
CAP COMPRESSOR CAPACITOR
CB CIRCUIT BREAKER
CC COMPRESSOR CONTACTOR
CO CONDENSATE OVERFLOW SENSOR
DISC UNIT DISCONNECT
DTS DISCHARGE TEMP SWITCH
FP1 SENSOR, LOW TEMP PROTECTION, WATER COIL
FP2 SENSOR, LOW TEMP PROTECTION, AIR COIL
HPS HIGH PRESSURE SWITCH
HPWS HIGH PRESSURE WATER SWITCH
JW JUMPER WIRE
LAT LEAVING AIR TEMPERATURE
LOC LOSS OF CHARGE PRESSURE SWITCH
LWT LEAVING WATER TEMPERATURE
MV MOTORIZED VALVE
MVES MOTORIZED VALVE END SWITCH
PI FIELD WIRING TERMINAL BLOCK
RVS REVERSING VALVE SOLENOID
TRANS TRANSFORMER
NOTES:
1. COMPRESSOR AND BLOWER MOTOR THERMALLY PROTECTED INTERNALLY.
2. 208-230V TRANSFORMER MUST BE CONNECTED FOR 230V OPERATION.
3. 208-230V TRANSFORMER MUST BE CONNECTED FOR 230V OPERATION. DISCONNECT RED LEAD AT L1, AND ATTACH ORANGE LEAD TO L1. INSULATE OPEN END OF RED LEAD. TRANSFORMER IS FACTORY WIRED FOR 230V OPERATION. 265V TRANSFORMER WILL BE CONNECTED FOR 230V OPERATION. ATTACH ORANGE LEAD TO L1. INSULATE OPEN END OF RED LEAD. TRANSFORMER IS ENERGY LIMITING OR MAY HAVE CIRCUIT BREAKER.
4. ANTI-FREEZE SOLUTIONS CUT JW3 JUMPER FOR FREEZE PROTECTION FOR WATER. WHEN USING FOR CONTROL WIRING TO THE UNIT.
5. REFER TO MFC, LON, OR TSTAT INSTALLATION, APPLICATION, AND OPERATION MANUALS.
6. 24V ALARM SIGNAL SHOWN. FOR DRY ALARM CONTACT, CUT JW1 JUMPER AND WIRE TYPICAL ALARM CIRCUIT SUPPLY VOLTAGE AND VOLTAGE RATING EQUAL TO OR GREATER THAN UNIT SUPPLY VOLTAGE.
7. TRANSFORMER SECONDARY GROUND VIA GREEN WIRE WITH YELLOW STRIPE FROM 'C' TERMINAL TO CONTROL BOX.
8. AQUA STAT IS SUPPLIED WITH UNIT AND MUST BE WIRED IN SERIES WITH THE HOT WATER GENERATOR PUMP. FOR HIGH OR LOW SPEED REMOVE BLU WIRE FROM FAN MOTOR SPEED TAP 'M' AND CONNECT TO 'H' FOR HIGH OR 'L' FOR LOW.
9. FAN MOTORS FACTORY WIRED FOR MEDIUM SPEED.
CONTROL BOX LAYOUT
COMPRESSOR SECOND STAGE SOLENOID TWO STAGE UNITS ONLY
SEE NOTE 5
TYPICAL T-STAT
SEE NOTE 6 FOR DRY ALARM CONTACT
SEE NOTE 7
NOTE 3
TRANS
RED 208V BRN (265)
ORG 240V
BLK COM
24V
CB
CXM MICROPROCESSOR CONTROL LOGIC
STATUS LED
ALARM RELAY
COMPRESSOR RELAY
TEST PINS
SEE NOTE 4
DIP SWITCH
UPS DISABLE(F)/ENABLE(N)
NOT USED
NOT USED
DDC OUTPUT (DDC: NORMAL)
FP1 (1FP1 F FAULTS 3X)
HPWS WTR IN
HPWS WTR OUT
HP
LOC
FP1
FP2
RVS
NOT USED
CO
TRANSFORMER PRIMARY LEAD COLORS
VOLTAGE LEAD LEAD COLOR
208 RED
230 RED
240 ORG
265 BRN
SEE NOTE 8
EXTERNAL HWG PUMP
HWG PUMP
OPTIONAL INTERNAL PUMP 208/230/60/1
DTS
ASTAT
HOT WATER GENERATOR*
POWER SUPPLY USE COPPER CONDUCTORS ONLY SEE NOTE 2 AND 8
RUN CAPACITOR
COMPR
GROUND
DISC
FIELD WIRING IS NOT PRESENT
WHEN DISCONNECT OPTION
3 AIR FLOW SETTINGS (FCTRY SETTING = MED)
SEE NOTE 9
CAPACITOR
PSC FAN MTR
REFER TO DATA PLATE
POWER SUPPLY
USE COPPER CONDUCTORS ONLY.
CXM CONTROLLER FAULT CODES
DESCRIPTION OF OPERATION
LED
ALARM RELAY
NORMAL MODE
ON
OPEN
NORMAL MODE W/ UPS WARNING
ON
CYCLE (CLOSED 5 SEC. OPEN 25 SEC.)
CXM IS NON-FUNCTIONAL
OFF
FAULT RETRY
SLOW FLASH
OPEN
LOCKOUT
FAST FLASH
CLOSED
OVER/UNDER VOLTAGE SHUTDOWN
SLOW FLASH
OPEN (CLOSED AFTER 15 MIN.)
TEST MODE-NO FAULT IN MEMORY
FLASHING CODE 1
CYCLING CODE 1
TEST MODE-HP FAULT IN MEMORY
FLASHING CODE 2
CYCLING CODE 2
TEST MODE-LP FAULT IN MEMORY
FLASHING CODE 3
CYCLING CODE 3
TEST MODE-FP1 FAULT IN MEMORY
FLASHING CODE 4
CYCLING CODE 4
TEST MODE-FP2-FAULT IN MEMORY
FLASHING CODE 5
CYCLING CODE 5
TEST MODE-CO FAULT IN MEMORY
FLASHING CODE 6
CYCLING CODE 6
TEST MODE-OVER/UNDER SHUTDOWN IN MEMORY
FLASHING CODE 7
CYCLING CODE 7
TEST MODE-UPS IN MEMORY
FLASHING CODE 8
CYCLING CODE 8
SWAPPED FP1/FP2 LOCKOUT
FLASHING CODE 9
CYCLING CODE 9

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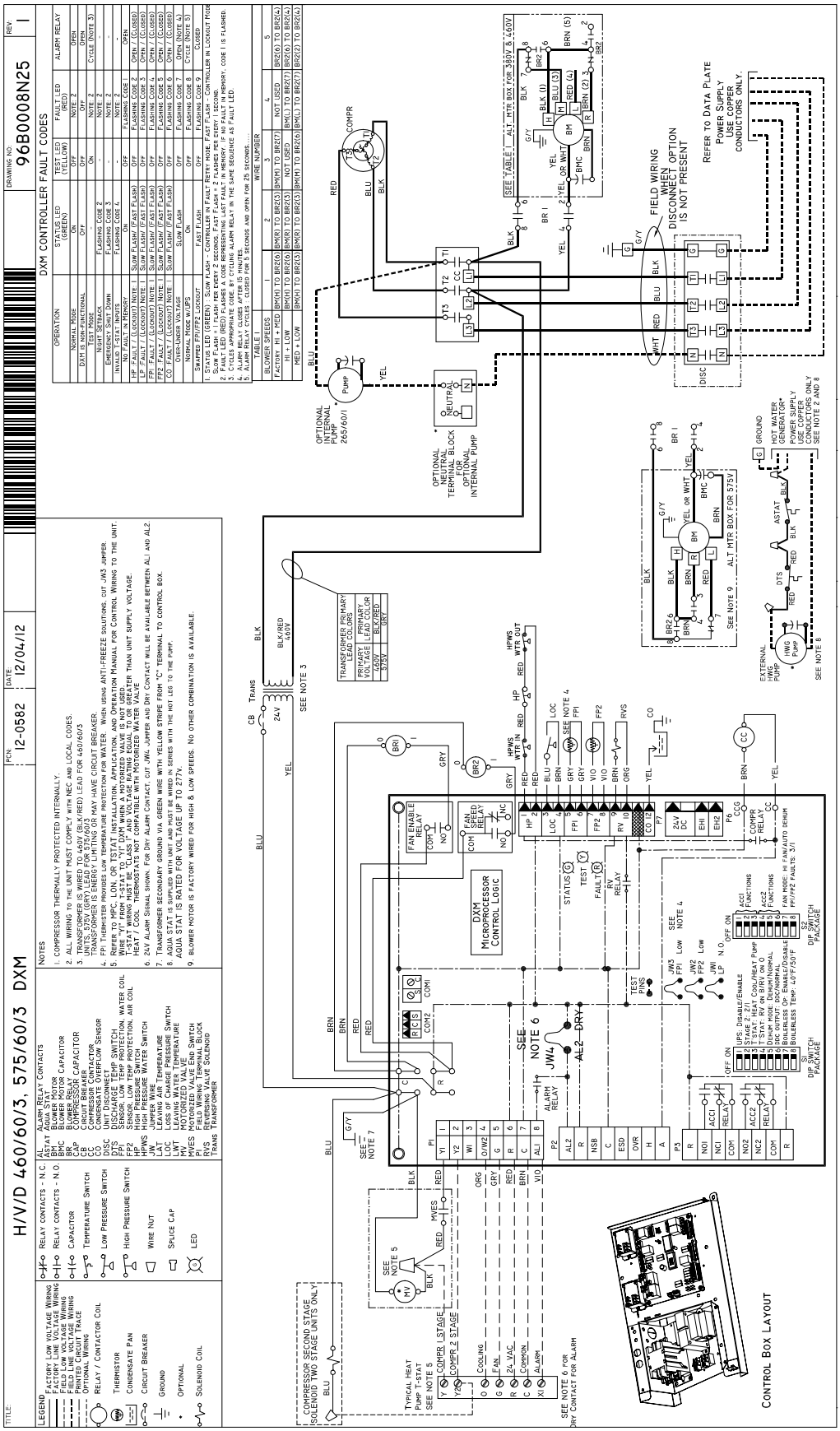
Typical Wiring Diagram – Three Phase TS Units with DXM Controller



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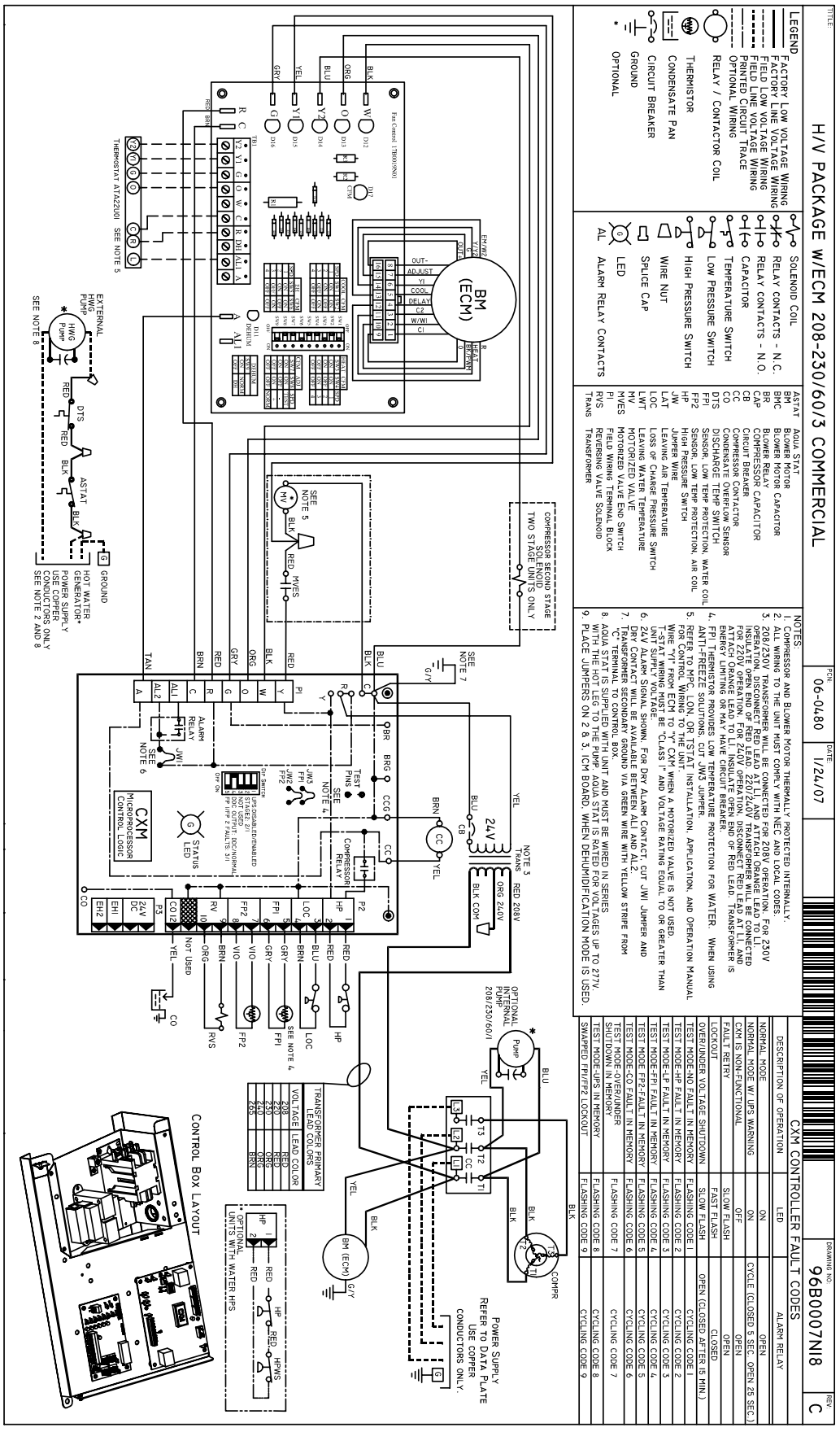
Typical Wiring Diagram – Three Phase TS Units with CXM Controller and ECM Blower


TITLE: H/V PACKAGE W/ECM 208-230/60/3 COMMERCIAL
PCN: 06-0480
DATE: 1/24/07
DRAWING NO: 96B0007N18
REV: C
LEGEND
FACTORY LOW VOLTAGE WIRING
FACTORY LINE VOLTAGE WIRING
FIELD LOW VOLTAGE WIRING
FIELD LINE VOLTAGE WIRING
PRINTED CIRCUIT TRACE
OPTIONAL WIRING
RELAY / CONTACTOR COIL
THERMISTOR
CONDENSATE PAN
CIRCUIT BREAKER
GROUND
OPTIONAL
SOLENOID COIL
RELAY CONTACTS - N.C.
RELAY CONTACTS - N.O.
CAPACITOR
TEMPERATURE SWITCH
LOW PRESSURE SWITCH
HIGH PRESSURE SWITCH
WIRE NUT
SPLICE CAP
LED
ALARM RELAY CONTACTS
ASTAT AQUA STAT
BM BLOWER MOTOR
BMC BLOWER MOTOR CAPACITOR
BR BLOWER RELAY
CAP COMPRESSOR CAPACITOR
CB CIRCUIT BREAKER
CC COMPRESSOR CONTACTOR
CO CONDENSATE OVERFLOW SENSOR
DTS DISCHARGE TEMP SWITCH
FP1 SENSOR, LOW TEMP PROTECTION, WATER COIL
FP2 SENSOR, LOW TEMP PROTECTION, AIR COIL
HP HIGH PRESSURE SWITCH
JW JUMPER WIRE
LAT LEAVING AIR TEMPERATURE
LOC LOSS OF CHARGE PRESSURE SWITCH
LWT LEAVING WATER TEMPERATURE
MV MOTORIZED VALVE
MVES MOTORIZED VALVE END SWITCH
P,J,TB FIELD WIRING TERMINAL BLOCK
RVS REVERSING VALVE SOLENOID
TRANS TRANSFORMER
NOTES:
1. COMPRESSOR AND BLOWER MOTOR THERMALLY PROTECTED INTERNALLY.
2. ALL WIRING TO THE UNIT MUST COMPLY WITH NEC AND LOCAL CODES.
3. 208/230V TRANSFORMER WILL BE CONNECTED FOR 208V OPERATION. FOR 230V OPERATION, REMOVE BLACK (208V) TRANSFORMER LEAD FROM INSULATED SPADE TERMINAL AND INSULATE. RECONNECT RED (230V) TRANSFORMER LEAD TO SPADE TERMINAL. FOR 220V OPERATION, DISCONNECT RED LEAD AT L1, AND ATTACH ORANGE LEAD TO L1. INSULATE OPEN END OF RED LEAD. TRANSFORMER IS ENERGY LIMITING OR MAY HAVE CIRCUIT BREAKER.
4. ANTI-THERMISTOR PROVIDES LOW TEMPERATURE PROTECTION FOR WATER. WHEN USING ANTI-THERMISTOR SOLUTIONS JUMPER INSTALLATION, APPLICATION, AND OPERATION MANUAL FOR CONTROL WIRING TO THE UNIT.
5. REFER TO MFG. LITERATURE FOR T-STAT WIRE "Y1" FROM ECM TO "Y" CXM WHEN A MOTORIZED VALVE IS NOT USED. T-STAT WIRING MUST BE "CLASS I" AND VOLTAGE RATING EQUAL TO OR GREATER THAN UNIT SUPPLY VOLTAGE.
6. 24V ALARM SIGNAL SHOWN. FOR DRY ALARM CONTACT, CUT JW1 JUMPER AND 24V ALARM SIGNAL AVAILABLE BETWEEN AL1 AND AL 2.
7. TRANSFORMER SECONDARY GROUND VIA GREEN WIRE WITH YELLOW STRIPE FROM "C" TERMINAL TO CONTROL BOX.
8. AQUA STAT IS SUPPLIED WITH UNIT AND MUST BE WIRED IN SERIES WITH THE HOT LEG TO THE PUMP. AQUA STAT IS RATED FOR VOLTAGES UP TO 277V.
9. PLACE JUMPERS ON 2 & 3. ICM BOARD. WHEN DEHUMIDIFICATION MODE IS USED.
CXM CONTROLLER FAULT CODES
DESCRIPTION OF OPERATION
LED
ALARM RELAY
NORMAL MODE — ON — OPEN
NORMAL MODE W/ UPS WARNING — ON — CYCLE (CLOSED 5 SEC. OPEN 25 SEC.)
CXM IS NON-FUNCTIONAL — OFF — OPEN
FAULT RETRY — SLOW FLASH — OPEN
LOCKOUT — FAST FLASH — CLOSED
OVER/UNDER VOLTAGE SHUTDOWN — SLOW FLASH — OPEN (CLOSED AFTER 15 MIN)
TEST MODE-NO FAULT IN MEMORY — FLASHING CODE 1 — CYCLING CODE 1
TEST MODE-HP FAULT IN MEMORY — FLASHING CODE 2 — CYCLING CODE 2
TEST MODE-LP FAULT IN MEMORY — FLASHING CODE 3 — CYCLING CODE 3
TEST MODE-FP1 FAULT IN MEMORY — FLASHING CODE 4 — CYCLING CODE 4
TEST MODE-FP2-FAULT IN MEMORY — FLASHING CODE 5 — CYCLING CODE 5
TEST MODE-CO FAULT IN MEMORY — FLASHING CODE 6 — CYCLING CODE 6
SHUTDOWN IN MEMORY — FLASHING CODE 7 — CYCLING CODE 7
TEST MODE-UPS IN MEMORY — FLASHING CODE 8 — CYCLING CODE 8
SWAPPED FP1/FP2 LOCKOUT — FLASHING CODE 9 — CYCLING CODE 9
BM (ECM)
CXM MICROPROCESSOR CONTROL LOGIC
STATUS LED
ALARM RELAY
JW1
SEE NOTE 6
TEST PINS SEE NOTE 4
DIP SWITCH
DIP1 ON=DISABLE/DEFAULT OFF=ENABLED
DIP2 NOT USED
DIP3 ON=NORMAL OFF=TEST
DIP4 OFF=1 FAULT/5 MIN ON=3 FAULTS/1 HR
JW2 FP1
JW3 FP2
COMPRESSOR RELAY
COMPRESSOR SECOND STAGE SOLENOID (TWO STAGE UNITS ONLY)
SEE NOTE 5
MV
MVES
BLK
RED
BLU
BRN
BRG
CCG
ORG
GRY
TAN
YEL
G/Y
SEE NOTE 7
NOTE 3 TRANS
24V
CB
CC
RED 208V
ORG 240V
BLK COM
OPTIONAL INTERNAL PUMP 208/230/60/1
PUMP
COMPR
POWER SUPPLY REFER TO DATA PLATE USE COPPER CONDUCTORS ONLY.
CONTROL BOX LAYOUT
TRANSFORMER PRIMARY LEAD COLORS
VOLTAGE LEAD COLOR
208 RED
230 RED
220 ORG
240 ORG
265 BRN
OPTIONAL UNITS WITH WATER HPS
HP
HPWS
SEE NOTE 4
LOC
FP1
FP2
RVS
CO
HOT WATER GENERATOR* POWER SUPPLY USE COPPER CONDUCTORS ONLY SEE NOTE 2 AND 8
EXTERNAL HWG PUMP* SEE NOTE 8
THERMOSTAT ATA2100 SEE NOTE 5
DTS
ASTAT
GROUND
Trane Comfort (TX9)(0)(9)(0)
BM (ECM)
OUT-
ADJUST
COOL
DELAY
W/W1
DIP SWITCH
HEAT PUMP
AUX HEAT
EMERGENCY HEAT
FAN
COOL
DEHUM
ON
OFF
R C Y2 Y1 G O W C R DH AL1 A
TB1
TB2
P1
P2
P3
24V DC
EH1
EH2
CO
RV
FP2
FP1
LOC
HP
AL1
AL2
A
C
R
G
O
W
Y
BLK
RED
BLU
BRN
BRG
CCG
ORG
GRY
TAN
YEL
VIO
G/Y
Not Used

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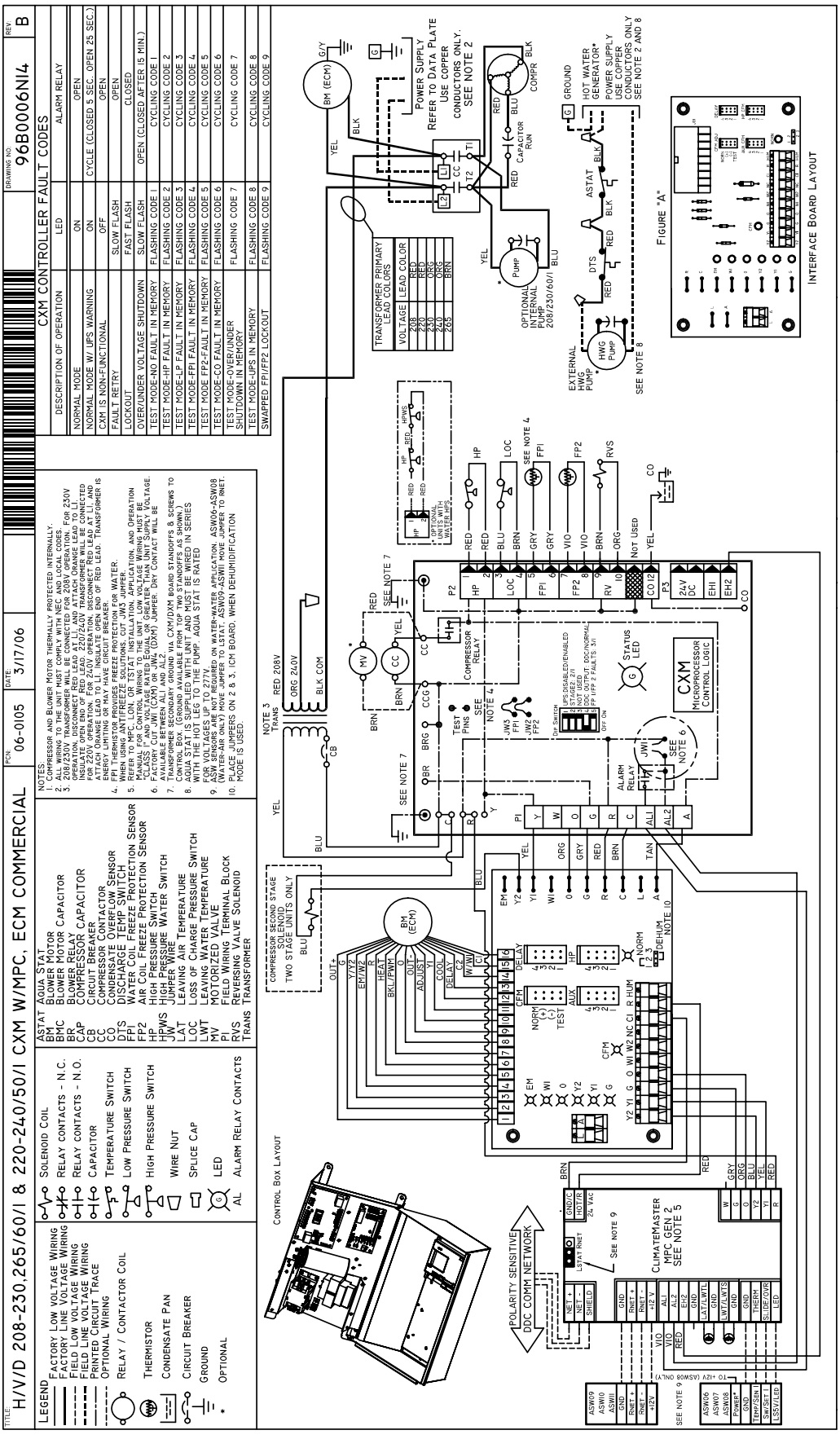
Typical Wiring Diagram – Single Phase TS Units with CXM, MPC, and ECM Controller


TITLE: H/V/D 208-230,265/60/1 & 220-240/50/1 CXM W/MPC, ECM COMMERCIAL
PCN: 06-0105
DATE: 3/17/06
DRAWING NO: 96B0006N14
REV: B
LEGEND
FACTORY LOW VOLTAGE WIRING
FACTORY LINE VOLTAGE WIRING
FIELD LOW VOLTAGE WIRING
FIELD LINE VOLTAGE WIRING
PRINTED CIRCUIT TRACE
OPTIONAL WIRING
RELAY / CONTACTOR COIL
THERMISTOR
CONDENSATE PAN
CIRCUIT BREAKER
GROUND
OPTIONAL
SOLENOID COIL
RELAY CONTACTS - N.C.
RELAY CONTACTS - N.O.
CAPACITOR
TEMPERATURE SWITCH
LOW PRESSURE SWITCH
HIGH PRESSURE SWITCH
WIRE NUT
SPLICE CAP
LED
ALARM RELAY CONTACTS
ASTAT AQUA STAT
BM BLOWER MOTOR
BMC BLOWER MOTOR CAPACITOR
BR BLOWER RELAY
CAP COMPRESSOR CAPACITOR
CB CIRCUIT BREAKER
CC COMPRESSOR CONTACTOR
CO CONDENSATE OVERFLOW SENSOR
DTS DISCHARGE TEMP SWITCH
FPI WATER COIL FREEZE PROTECTION SENSOR
FP2 AIR COIL FREEZE PROTECTION SENSOR
HPS HIGH PRESSURE SWITCH
HPWS HIGH PRESSURE WATER SWITCH
JW JUMPER WIRE
LAT LEAVING AIR TEMPERATURE
LOC LOSS OF CHARGE PRESSURE SWITCH
LWT LEAVING WATER TEMPERATURE
MV MOTORIZED VALVE
PI FIELD WIRING TERMINAL BLOCK
RVS REVERSING VALVE SOLENOID
TRANS TRANSFORMER
NOTES
1. COMPRESSOR AND BLOWER MOTOR THERMALLY PROTECTED INTERNALLY.
2. ALL WIRING TO THE UNIT MUST COMPLY WITH NEC AND LOCAL CODES.
3. 208/230V TRANSFORMER WILL BE CONNECTED FOR 208V OPERATION. FOR 230V OPERATION, DISCONNECT RED LEAD AT L1, AND ATTACH ORANGE LEAD TO L1. INSULATE OPEN END OF RED LEAD. FOR 240V OPERATION, DISCONNECT RED LEAD AT L2, AND ATTACH ORANGE LEAD TO L2. INSULATE OPEN END OF RED LEAD. TRANSFORMER IS FACTORY CONNECTED FOR 265V OPERATION.
4. FPI THERMISTOR PROVIDES FREEZE PROTECTION FOR WATER. WHEN USING ANTIFREEZE SOLUTIONS, CUT JW3 JUMPER.
5. REFER TO MPC, I, OR IST/AT INSTALLATION, APPLICATION, AND OPERATION MANUALS FOR ADDITIONAL INFORMATION. WIRE SIZES ARE BASED ON 75°C "CLASS 1" AND VOLTAGE RATED EQUAL OR GREATER THAN UNIT SUPPLY VOLTAGE
6. FACTORY CUT JW1 (CXM) OR JW4 (DXM) JUMPER. DRY CONTACT WILL BE ENERGIZED WHEN ALARM IS ACTIVE.
7. TRANSFORMER SECONDARY GROUND VIA CXM/DXM BOARD STANDOFFS & SCREWS TO CONTROL BOX. (GROUND AVAILABLE FROM TOP TWO STANDOFFS AS SHOWN.)
8. AQUA STAT IS SUPPLIED WITH UNIT AND MUST BE WIRED IN SERIES WITH LWT AND LOC TO THE PUMP. AQUA STAT IS RATED FOR VOLTAGES UP TO 277V.
9. ASW SENSORS ARE NOT REQUIRED ON WATER-WATER APPLICATION. ASW06-ASW08 (WATER-AIR ONLY) MOVE JUMPER TO LSTAT. ASW09-ASW11 MOVE JUMPER TO RNET.
10. FLASHING LEDS ON 2 & 3 /ICM BOARD, WHEN DEHUMIDIFICATION MODE IS USED.
CXM CONTROLLER FAULT CODES
DESCRIPTION OF OPERATION | LED | ALARM RELAY
NORMAL MODE | ON | OPEN
NORMAL MODE W/ UPS WARNING | ON | CYCLE (CLOSED 5 SEC., OPEN 25 SEC.)
CXM IS NON-FUNCTIONAL | OFF | OPEN
FAULT RETRY | SLOW FLASH | OPEN
LOCKOUT | FAST FLASH | CLOSED
OVER/UNDER VOLTAGE SHUTDOWN | SLOW FLASH | OPEN (CLOSED AFTER 15 MIN.)
TEST MODE-NO FAULT IN MEMORY | FLASHING CODE 1 | CYCLING CODE 1
TEST MODE-HP FAULT IN MEMORY | FLASHING CODE 2 | CYCLING CODE 2
TEST MODE-LP FAULT IN MEMORY | FLASHING CODE 3 | CYCLING CODE 3
TEST MODE-FPI FAULT IN MEMORY | FLASHING CODE 4 | CYCLING CODE 4
TEST MODE FP2-FAULT IN MEMORY | FLASHING CODE 5 | CYCLING CODE 5
TEST MODE-CO FAULT IN MEMORY | FLASHING CODE 6 | CYCLING CODE 6
TEST MODE-OVER/UNDER SHUTDOWN IN MEMORY | FLASHING CODE 7 | CYCLING CODE 7
TEST MODE-UPS IN MEMORY | FLASHING CODE 8 | CYCLING CODE 8
SWAPPED FPI/FP2 LOCKOUT | FLASHING CODE 9 | CYCLING CODE 9
TRANSFORMER PRIMARY LEAD COLORS
VOLTAGE | LEAD COLOR
208 | RED
220 | RED
230 | ORG
240 | ORG
265 | BRN
FIGURE "A"
INTERFACE BOARD LAYOUT
CONTROL BOX LAYOUT
POLARITY SENSITIVE DDC COMM NETWORK
CLIMATEMASTER MPC GEN 2 SEE NOTE 5
CXM MICROPROCESSOR CONTROL LOGIC
COMPRESSOR SECOND STAGE SOLENOID TWO STAGE UNITS ONLY
POWER SUPPLY REFER TO DATA PLATE USE COPPER CONDUCTORS ONLY. SEE NOTE 2
OPTIONAL INTERNAL PUMP 208/230/60/1
EXTERNAL HWG PUMP
HOT WATER GENERATOR* POWER SUPPLY USE COPPER CONDUCTORS ONLY SEE NOTE 2 AND 8
SEE NOTE 8
SEE NOTE 9
SEE NOTE 10

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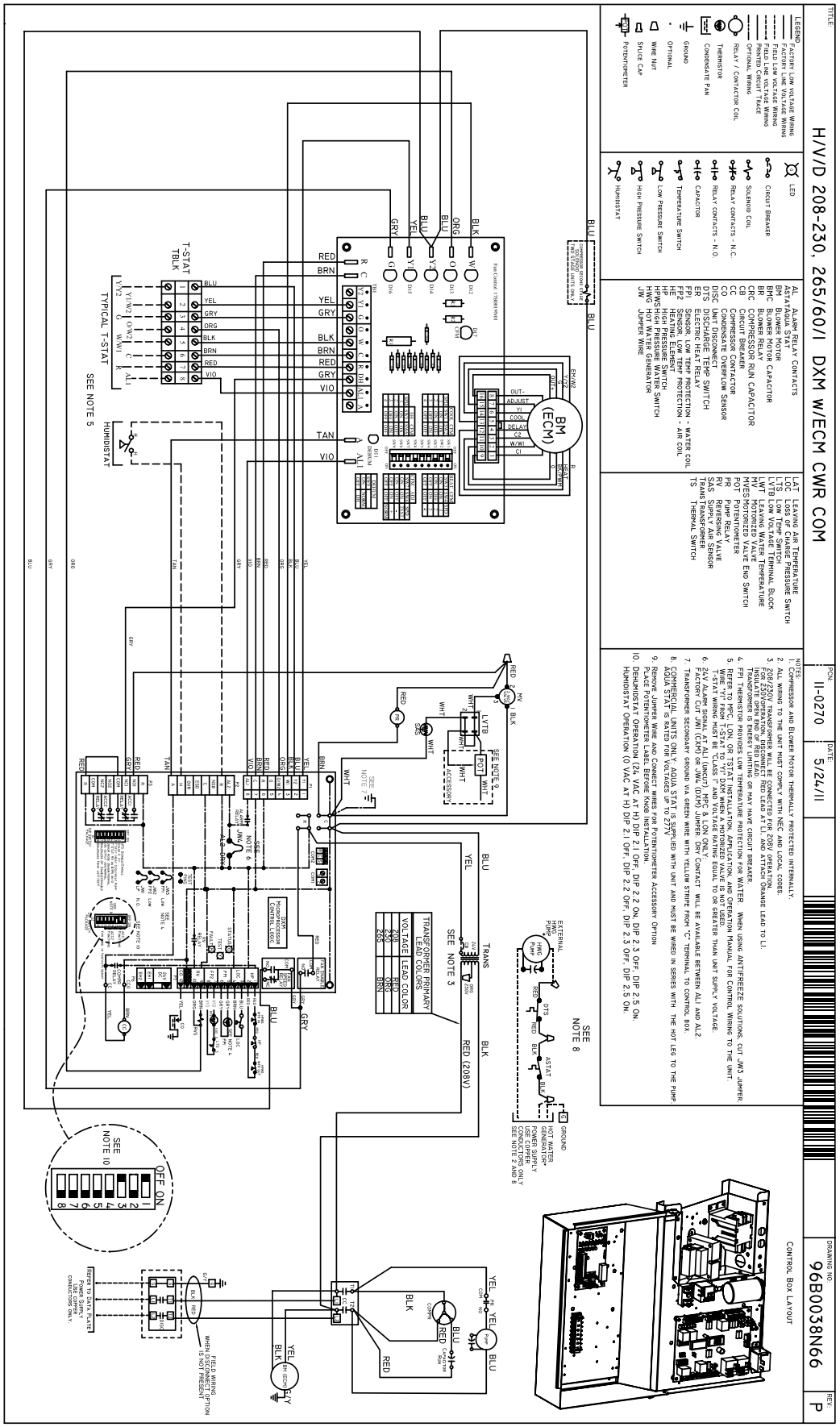
Typical Wiring Diagram – Single Phase TS Units with ClimaDry® II and ECM Blower


H/V/D 208-230, 265/60/1 DXM w/ECM CWR COM
PCN 11-0270
DATE 5/24/11
DRAWING NO. 96B0038N66
REV. P
NOTES
1. COMPRESSOR AND BLOWER MOTOR THERMALLY PROTECTED INTERNALLY.
2. ALL WIRING TO THE UNIT MUST COMPLY WITH NEC AND LOCAL CODES.
3. FOR 208/230V TRANSFORMER WILLBE CONNECTED FOR 208V OPERATION. FOR 265V TRANSFORMER WILL BE CONNECTED FOR 277V OPERATION. INSULATE OPEN END OF RED LEAD THAT IS NOT USED.
4. FPI THERMISTOR PROVIDES LOW TEMPERATURE PROTECTION FOR WATER - WHEN USING ANTIFREEZE SOLUTIONS CUT JW3 JUMPER WIRE 'YY' FROM T-STAT TO 'YY' DXM WHEN A MOTORIZED VALVE IS NOT USED.
5. REFER TO MPC, LION, OR TSTAT INSTALLATION, APPLICATION, AND OPERATION MANUAL FOR CONTROL WIRING TO THE UNIT.
6. T-STAT WIRING MUST BE 'CLASS I' AND VOLTAGE RATING EQUAL TO OR GREATER THAN UNIT SUPPLY VOLTAGE
7. FACTORY CUT JW1 (C2M) OR JW2 (D2M) JUMPER. DRY CONTACT WILL BE AVAILABLE BETWEEN A1 AND A2.
8. TRANSFORMER SECONDARY GROUND VIA GREEN WIRE WITH YELLOW STRIPE FROM 'C' TERMINAL TO CONTROL BOX.
9. COMMERCIAL UNITS ONLY. AQUA STAT IS SUPPLIED WITH UNIT AND MUST BE WIRED IN SERIES WITH THE HOT LEG TO THE PUMP. AQUA STAT IS RATED FOR VOLTAGES UP TO 277V.
10. REMOVE JUMPER WIRE AND CONNECT WIRES FOR POTENTIOMETER ACCESSORY OPTION. PLACE POTENTIOMETER LABEL BEFORE KNOB INSTALLATION.
11. DEHUMIDIST OPERATION (24 VAC AT H): DIP 2.1 OFF; DIP 2.2 ON; DIP 2.3 OFF; DIP 2.5 ON. HUMIDSTAT OPERATION (0 VAC AT H): DIP 2.1 OFF; DIP 2.2 OFF; DIP 2.3 OFF; DIP 2.5 ON.
LEGEND
FACTORY LOW VOLTAGE WIRING
FACTORY HIGH VOLTAGE WIRING
FIELD LOW VOLTAGE WIRING
FIELD LINE VOLTAGE WIRING
PRINTED CIRCUIT TRACE
OPTIONAL WIRING
RELAY / CONTACTOR COIL
THERMISTOR
CONDENSATE FAN
GROUND
OPTIONAL
WIRE NUT
SPLICE CAP
POTENTIOMETER
LED
CIRCUIT BREAKER
SOLENOID COIL
RELAY CONTACTS - N.C.
RELAY CONTACTS - N.O.
CAPACITOR
TEMPERATURE SWITCH
LOW PRESSURE SWITCH
HIGH PRESSURE SWITCH
HUMIDISTAT
AL ALARM RELAY CONTACTS
AST ASTATAQUA STAT
BM BLOWER MOTOR
BMC BLOWER MOTOR CAPACITOR
BR BLOWER RELAY
CRC COMPRESSOR RUN CAPACITOR
CB CIRCUIT BREAKER
CC COMPRESSOR CONTACTOR
CO CONDENSATE OVERFLOW SENSOR
DFD DIAGNOSTIC FAULT DISPLAY
DTS DISCHARGE TEMP SWITCH
ER ELECTRIC HEAT RELAY
FPI SENSOR, LOW TEMP PROTECTION - WATER COIL
FP2 SENSOR, LOW TEMP PROTECTION - AIR COIL
HP HIGH PRESSURE SWITCH
HPWS HIGH PRESSURE WATER SWITCH
JW JUMPER WIRE
LAT LEAVING AIR TEMPERATURE
LOC LOSS OF CHARGE PRESSURE SWITCH
LTS LOW TEMP SWITCH
LVTB LOW VOLTAGE TERMINAL BLOCK
LWT LEAVING WATER TEMPERATURE
MV MOTORIZED VALVE
MVES MOTORIZED VALVE END SWITCH
POT POTENTIOMETER
RV REVERSING VALVE
SAS SUPPLY AIR SENSOR
TRANS TRANSFORMER
TS THERMAL SWITCH
CONTROL BOX LAYOUT
BM (ECM)
T-STAT TB1K
TYPICAL T-STAT
SEE NOTE 5
HUMIDISTAT
TRANSFORMER PRIMARY LEAD COLORS
VOLTAGE LEAD COLOR
208 RED
230 ORG
265 BRN
277 GRY
SEE NOTE 3
SEE NOTE 8
EXTERNAL HWG PUMP
HOT WATER GENERATOR*
*FOR COPPER PIPING ONLY USE COPPER CONDUCTORS ONLY SEE NOTE 2 AND 8
SEE NOTE 10
OFF ON
REFER TO DATA PLATE FOR POWER SUPPLY CONDUCTORS ONLY.
FIELD WIRING WHEN DISCONNECT IS NOT PRESENT
BM (ECM)
COMPR
PUMP

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Tranquility® 20 (TS) Series 60Hz
Engineering Specifications – Page 1

General:
Furnish and install ClimateMaster Tranquility® "TS" Water Source Heat Pumps, as indicated on the plans. Equipment shall be completely assembled, piped and internally wired. Capacities and characteristics as listed in the schedule and the specifications that follow.

Units shall be supplied completely factory built capable of operating over an entering water temperature range from 20° to 120°F (-6.7° to 48.9°C) as standard. Equivalent units from other manufacturers may be proposed provided approval to bid is given 10 days prior to bid closing. All equipment listed in this section must be rated and certified in accordance with Air-Conditioning, Heating and Refrigeration Institute/International Standards Organization (AHRI/ISO 13256-1). All equipment must be tested, investigated, and determined to comply with the requirements of the standards for Heating and Cooling Equipment UL-1995 for the United States and CAN/CSA-C22.2 NO.236 for Canada, by Intertek Testing Laboratories (ETL). The units shall have AHRI/ISO and ETL-US-C labels.

All units shall be fully quality tested by factory run testing under normal operating conditions as described herein. Quality control system shall automatically perform via computer: triple leak check, pressure tests, evacuation and accurately charge system, perform detailed heating and cooling mode tests, and quality cross check all operational and test conditions to pass/fail criteria. Detailed report card will ship with each unit displaying status for critical tests and components. **Note: If unit fails on any cross check, it shall not be allowed to ship. Serial numbers will be recorded by factory and furnished to contractor on report card for ease of unit warranty status. Units tested without water flow are not acceptable.**

Basic Construction:
Horizontal Units shall have one of the following air flow arrangements: Left Inlet/Straight (Right) Discharge; Right Inlet/Straight (Left) Discharge; Left Inlet/Back Discharge; or Right Inlet/Back Discharge as shown on the plans. Units must have the ability to be field convertible from straight to back or back to straight discharge with no additional parts or unit structure modification. Horizontal units will have factory installed hanger brackets with rubber isolation grommets packaged separately.

Vertical Units shall have one of the following air flow arrangements: Left Return/Top Discharge, Right Return/Top Discharge, Left Return/Bottom Discharge, Right Return/Bottom Discharge as shown on the plans.

If units with these arrangements are not used, the contractor is responsible for any extra costs incurred by other trades. All units (horizontal and vertical) must have a minimum of three access panels for serviceability of compressor compartment. **Units having only one access panel to compressor/heat exchangers/expansion device/refrigerant piping shall not be acceptable.**

Compressor section interior surfaces shall be lined with 1/2 inch (12.7mm) thick, 1-1/2 lb/ft3 (24 kg/m3) acoustic type glass fiber insulation. Air handling section interior surfaces shall be lined with 1/2 in (12.7mm) thick, 1-1/2 lb/ft3 (24 kg/m3) **foil faced** fiber insulation for ease of cleaning. Insulation placement shall be designed in a manner that will eliminate any exposed edges to prevent the introduction of glass fibers into the air stream. **Units without foil faced insulation in the air handling section will not be accepted.**

The heat pumps shall be fabricated from heavy gauge galvanized steel with powder coat paint finish. Both sides of the steel shall be painted for added protection.

Standard cabinet panel insulation must meet NFPA 90A requirements, air erosion and mold growth limits of UL-181, stringent fungal resistance test per ASTM-C1071 and ASTM G21, and shall meet zero level bacteria growth per ASTM G22. **Unit insulation must meet these stringent requirements or unit(s) will not be accepted.**

All horizontal units to have factory installed 1" (25.4mm) discharge air duct collars, 1" (25.4mm) filter rails with 1" (25.4mm) filters factory installed, and factory installed unit-mounting brackets. Vertical units to have field installed discharge air duct collar, shipped loose and 1" (25.4mm) filter rails with 1" (25.4mm) filters factory installed. **If units with these factory-installed provisions are not used, the contractor is responsible for any extra costs to field install these provisions, and/or the extra costs for his sub-contractor to install these provisions.**

All units must have an insulated panel separating the fan compartment from the compressor compartment. Units with the compressor in the air stream are not acceptable. Units shall have a factory installed 1 inch (25.4mm) wide filter bracket for filter removal from either side. Units shall have a 1 inch (25.4mm) thick throwaway type glass fiber filter. The contractor shall purchase one spare set of filters and replace factory shipped filters on completion of start-up. Filters shall be standard sizes. If units utilize non-standard filter sizes then the contractor shall provide 12 spare filters for each unit.

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Cabinets shall have separate holes and knockouts for entrance of line voltage and low voltage control wiring. All factory-installed wiring passing through factory knockouts and openings shall be protected from sheet metal edges at openings by plastic ferrules. Supply and return water connections shall be copper FPT fittings, and shall be securely mounted flush to the cabinet corner post allowing for connection to a flexible hose without the use of a back-up wrench. Water connections that protrude through the cabinet or require the use of a backup wrench shall not be allowed. All water connections and electrical knockouts must be in the compressor compartment corner post as to not interfere with the serviceability of unit. Contractor shall be responsible for any extra costs involved in the installation of units that do not have this feature. Contractor must ensure that units can be easily removed for servicing and coordinate locations of electrical conduit and lights with the electrical contractor.

Option: Contractor shall install 2-inch (50.8mm) filter racks with removable access door and 2 inch (50.8mm) MERV11 pleated throwaway filters on all units.

Option: UltraQuiet package (available on TS018-070 Units) shall consist of high technology sound attenuating material that is strategically applied to the compressor and air handling compartment casings and fan scroll in addition to the standard ClimaQuiet system design, to further dampen and attenuate sound transmissions. Compressor is mounted on specially engineered sound-tested spring isolators.

Option: The unit will be supplied with internally factory mounted two-way water valve for variable speed pumping requirements. A factory-mounted or field-installed high pressure switch shall be installed in the water piping to disable compressor operation in the event water pressures build due to water freezing in the piping system.

Option: The unit will be supplied with internally factory mounted automatic water flow regulators.

Option: The unit will be supplied with internally mounted secondary pump for primary/secondary applications, including one-pipe systems.

Option: The unit shall be supplied with extended range Insulation option, which adds closed cell insulation to internal water lines, and provides insulation on suction side refrigeration tubing including refrigerant to water heat exchanger.

Fan and Motor Assembly:
Blower shall have inlet rings to allow removal of wheel and motor from one side without removing housing. Units shall have a direct-drive centrifugal fan. The fan motor shall be 3-speed (2-speed for 575V), permanently lubricated, PSC type, with internal thermal overload protection. Units supplied without permanently lubricated motors must provide external oilers for easy service. The fan motor on small and medium size units (006-048) shall be isolated from the fan housing by a torsionally flexible motor mounting system with rubber type grommets to inhibit vibration induced high noise levels associated with "hard wire belly band" motor mounting. The fan motor on larger units (060 & 070) shall be isolated with flexible rubber type isolation grommets only. The fan and motor assembly must be capable of overcoming the external static pressures as shown on the schedule. Airflow / Static pressure rating of the unit shall be based on a wet coil and a clean filter in place. **Ratings shall NOT be acceptable based on a dry coil and/ or no air filter.**

Option: The fan motor shall be an ECM variable speed ball bearing type motor. The ECM fan motor shall provide soft starting, maintain constant CFM over its static operating range and provide airflow adjustment on its control board. The fan motor shall be isolated from the housing by rubber grommets. The motor shall be permanently lubricated and have thermal overload protection. A special dehumidification mode shall be provided to allow lower airflows in cooling for better dehumidification. The dehumidification mode shall be selectable via a jumper on the control board or may be controlled externally from a humidistat.

Option: High static motors (sizes 018-060).

Refrigerant Circuit:
All units shall contain an EarthPure® (HFC-410A) sealed refrigerant circuit including a high efficiency scroll or rotary compressor designed for heat pump operation, a thermostatic expansion valve for refrigerant metering, an enhanced corrugated aluminum lanced fin and rifled copper tube refrigerant to air heat exchanger, reversing valve, coaxial (tube in tube) refrigerant to water heat exchanger, and safety controls including a high pressure switch, low pressure switch (loss of charge), water coil low temperature sensor, and air coil low temperature sensor. Access fittings shall be factory installed on high and low pressure refrigerant lines to facilitate field service. Activation of any safety device shall prevent compressor operation via a microprocessor lockout circuit. The lockout circuit shall be reset at the thermostat or at the contractor supplied disconnect switch. **Units that cannot be reset at the thermostat shall not be acceptable.**

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Hermetic compressors shall be internally sprung. The compressor shall have a dual level vibration isolation system. The compressor will be mounted on specially engineered sound-tested EPDM vibration isolation grommets to a large heavy gauge compressor mounting plate, which is then isolated from the cabinet base with rubber grommets for maximized vibration attenuation. All units (except units with rotary compressors) shall include a discharge muffler to further enhance sound attenuation. Compressor shall have thermal overload protection. Compressor shall be located in an insulated compartment away from air stream to minimize sound transmission.

Refrigerant to air heat exchangers shall utilize enhanced corrugated lanced aluminum fins and rifled copper tube construction rated to withstand 625 PSIG (4309 kPa) refrigerant working pressure. Refrigerant to water heat exchangers shall be of copper inner water tube and steel refrigerant outer tube design, rated to withstand 625 PSIG (4309 kPa) working refrigerant pressure and 500 PSIG (3445 kPa) working water pressure. The refrigerant to water heat exchanger shall be "electro-coated" with a low cure cathodic epoxy material a minimum of 0.4 mils thick (0.4 – 1.5 mils range) on all surfaces. The black colored coating shall provide a minimum of 1000 hours salt spray protection per ASTM B117-97 on all external steel and copper tubing. The material shall be formulated without the inclusion of any heavy metals and shall exhibit a pencil hardness of 2H (ASTM D3363-92A), crosshatch adhesion of 4B-5B (ASTM D3359-95), and impact resistance of 160 in-lbs (184 kg-cm) direct (ASTM D2794-93).

Refrigerant metering shall be accomplished by thermostatic expansion valve only. Expansion valves shall be dual port balanced types with external equalizer for optimum refrigerant metering. Units shall be designed and tested for operating ranges of entering water temperatures from 20° to 120°F (-6.7° to 48.9°C). Reversing valve shall be four-way solenoid activated refrigerant valve, which shall default to heating mode should the solenoid fail to function. If the reversing valve solenoid defaults to cooling mode, an additional low temperature thermostat must be provided to prevent over-cooling an already cold room.

Option: The unit shall be supplied with a hot water generator (desuperheater).

Option: The unit will be supplied with cupro-nickel coaxial water to refrigerant heat exchanger.

Option: The refrigerant to air heat exchanger shall be coated.

Option: Unit shall include ClimaDry®II reheat option. Only modulating reheat that will adjust capacity based upon supply air temperature to provide "neutral" (72°F, 22.2°C) constant air temperature will be accepted. "Neutral" supply air temperature shall be provided regardless of entering loop water temperatures (above 55°F, 12.8°C) or refrigerant condensing pressures. Control of reheat must be accomplished via a humidistat or dehumidistat contact closure. Refrigerant circuit must be AHRI certified. Approved equal manufacturers may provide pre-engineered integrated modulating hot gas reheat within the unit cabinet, or the installing contractor in conjunction with the "approved equal" unit manufacturer can provide for approval (during the submittal phase) an engineered system consisting of: a duct mounted hot water coil, small circulating pump, modulating control valve, and associated piping using the discharge condenser water off of the unit as the heating medium. All design costs and costs of field installed items including additional power wiring to pump, and control wiring to and from pump and control valve to unit shall be borne by mechanical contractor. ***Refrigerant circuits that are not AHRI certified when the reheat option is applied will not be accepted. (See ClimaDry® submittal for more details and unit availability.)***

Drain Pan:
The drain pan shall be constructed of 304 Stainless Steel to inhibit corrosion. This corrosion protection system shall meet the stringent 1000 hour salt spray test per ASTM B117. If plastic type material is used, it must be HDPE (High Density Polyethylene) to avoid thermal cycling shock stress failure over the lifetime of the unit. Drain pan shall be fully insulated. Drain outlet shall be located at pan as to allow complete and unobstructed drainage of condensate. Drain outlet for horizontal units shall be connected from pan directly to FPT fitting. **No hidden internal tubing extensions from pan outlet extending to unit casing (that can create drainage problems) will be accepted.** The unit as standard will be supplied with solid-state electronic condensate overflow protection. **Mechanical float switches will NOT be accepted.**

Vertical units shall be furnished with a PVC FPT condensate drain connection and an internal factory installed condensate trap. If units without an internal trap are used, the contractor is responsible for any extra costs to field install these provisions, and/or the extra costs for his sub-contractor to install these provisions.

Electrical:
A control box shall be located within the unit compressor compartment and shall contain a 50VA transformer, 24 volt activated, 2 or 3 pole compressor contactor, terminal block for thermostat wiring and solid-state controller for complete unit operation. Reversing valve and fan motor wiring shall be routed through this electronic controller. Units shall be name-plated for use with time delay fuses or HACR circuit breakers. Unit controls shall be 24 Volt and provide heating or cooling as required by the remote thermostat/sensor.

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Option: Units shall be supplied with factory installed non-fused electrical service disconnect switch.

Solid State Control System (CXM):
Units shall have a solid-state control system. **Units utilizing electro-mechanical control shall not be acceptable.** The control system microprocessor board shall be specifically designed to protect against building electrical system noise contamination, EMI, and RFI interference. The control system shall interface with a heat pump type thermostat. The control system shall have the following features:

a. Anti-short cycle time delay on compressor operation.
b. Random start on power up mode.
c. Low voltage protection.
d. High voltage protection.
e. Unit shutdown on high or low refrigerant pressures.
f. Unit shutdown on low water temperature.
g. Condensate overflow electronic protection.
h. Option to reset unit at thermostat or disconnect.
i. Automatic intelligent reset. Unit shall automatically reset the unit 5 minutes after trip if the fault has cleared. If a fault occurs 3 times sequentially without thermostat meeting temperature, then lockout requiring manual reset will occur.
j. Ability to defeat time delays for servicing.
k. Light emitting diode (LED) on circuit board to indicate high pressure, low pressure, low voltage, high voltage, low water/air temperature cut-out, condensate overflow, and control voltage status.
l. The low-pressure switch shall not be monitored for the first 120 seconds after a compressor start command to prevent nuisance safety trips.
m. 24V output to cycle a motorized water valve or other device with compressor contactor.
n. Unit Performance Sentinel (UPS). The UPS warns when the heat pump is running inefficiently.
o. Water coil low temperature sensing (selectable for water or antifreeze).
p. Air coil low temperature sensing.

NOTE: Units not providing the 8 safety protections of anti-short cycle, low voltage, high voltage, high refrigerant pressure, low pressure (loss of charge), air coil low temperature cut-out, water coil low temperature cut-out, and condensate overflow protections will not be accepted.

Solid State ECM Fan Control Board (60 Hz Units with ECM Fan Option Only):
Airflow selection shall be accomplished via 3 jumper switches on the ECM control board. Actual airflow shall be indicated by the CFM LED with each 100 CFM being represented by one flash of the LED. Airflow shall be automatically maintained (±5%) by the ECM motor regardless of external static pressure up to its maximum output capacity. A jumper shall allow selection of a special dehumidification mode, which reduces airflow in cooling by 25% to increase the latent capacity of the unit. A terminal shall be provided on the control board to allow an external humidistat to activate dehumidification mode.

Option: Enhanced solid state control system (DXM)
This control system features two stage control of cooling and two stage control of heating modes for exacting temperature and dehumidification purposes.

This control system coupled with a multi-stage thermostat will better dehumidify room air by automatically running the heat pump's fan at lower speed on the first stage of cooling thereby implementing low sensible heat ratio cooling. On the need for higher cooling performance the system will activate the second stage of cooling and automatically switch the fan to the higher fan speed setting. This system may be further enhanced with a humidistat. **Units not having automatic low sensible heat ratio cooling will not be accepted; as an alternate a hot gas reheat coil may be provided with control system for automatic activation.**

Control shall have all of the above mentioned features of the CXM control system along with the following expanded features:

a. Removable thermostat connector.
b. Night setback control.
c. Random start on return from night setback.
d. Minimized reversing valve operation (Unit control logic shall only switch the reversing valve when cooling is demanded for the first time. The reversing valve shall be held in this position until the first call for heating, ensuring quiet operation and increased valve life.).
e. Override temperature control with 2-hour timer for room occupant to override setback temperature at the thermostat.
f. Dry contact night setback output for digital night setback thermostats.
g. Ability to work with heat pump or heat/cool (Y,W) type thermostats.

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h. Ability to work with heat pump thermostats using O or B reversing valve control.
i. Emergency shutdown contacts.
j. Boilerless system heat control at low loop water temperature.
k. Ability to allow up to 3 units to be controlled by one thermostat.
l. Relay to operate an external damper.
m. Ability to automatically change fan speed from multistage thermostat.
n. Relay to start system pump.
o. 75 VA control transformer. Control transformer shall have load side short circuit and overload protection via a built in circuit breaker.

Digital Night Setback with Pump Restart (DXM w/ ATP32U03/04)
The unit will be provided with a Digital Night Setback feature using an accessory relay on the DXM controller with an ATP32U03/04 thermostat and an external, field-provided time clock. The external time clock will initiate and terminate the night setback period. The thermostat will have a night setback override feature with a programmable override time period.
An additional accessory relay on the unit DXM controller will energize the building loop pump control for the duration of the override period. **(Note: this feature requires additional low voltage wiring. Consult Application Drawings for details.)**

Remote Service Sentinel (CXM/DXM):
Solid state control system shall communicate with thermostat to display (at the thermostat) the unit status, fault status, and specific fault condition, as well as retrieve previously stored fault that caused unit shutdown. The Remote Service Sentinel allows building maintenance personnel or service personnel to diagnose unit from the wall thermostat. The control board shall provide a signal to the thermostat fault light, indicating a lockout. Upon cycling the G (fan) input 3 times within a 60 second time period, the fault light shall display the specific code as indicated by a sequence of flashes. A detailed flashing code shall be provided at the thermostat LED to display unit status and specific fault status such as over/under voltage fault, high pressure fault, low pressure fault, low water temperature fault, condensate overflow fault, etc. **Units that do not provide this remote service sentinel shall not be acceptable.**

Option: Lonworks interface system
Units shall have all the features listed above (either CXM or DXM) and the control board will be supplied with a LONWORKS interface board, which is LONMark certified. This will permit all units to be daisy chained via a 2-wire twisted pair shielded cable. The following points must be available at a central or remote computer location:

a. space temperature
b. leaving water temperature
c. discharge air temperature
d. command of space temperature setpoint
e. cooling status
f. heating status
g. low temperature sensor alarm
h. low pressure sensor alarm
i. high pressure switch alarm
j. condensate sensor alarm
k. hi/low voltage alarm
l. fan "ON/AUTO" position of space thermostat as specified above
m. unoccupied/occupied command
n. cooling command
o. heating command
p. fan "ON/AUTO" command
q. fault reset command
r. itemized fault code revealing reason for specific shutdown fault (any one of 7)

This option also provides the upgraded 75VA control transformer with load side short circuit and overload protection via a built in circuit breaker.

Option: MPC (Multiple Protocol Control) interface system
Units shall have all the features listed above (either CXM or DXM) and the control board will be supplied with a Multiple Protocol interface board. Available protocols are BACnet MS/TP, Modbus, or Johnson Controls N2. The choice of protocol shall be field selectable/changeable via the use of a simple selector switch. **Protocol selection shall not require any additional programming or special external hardware or software tools.** This will permit all units to be daisy chain connected by a 2-wire twisted pair shielded cable. The following points must be available at a central or remote computer location:

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a. space temperature
b. leaving water temperature
c. discharge air temperature
d. command of space temperature setpoint
e. cooling status
f. heating status
g. low temperature sensor alarm
h. low pressure sensor alarm
i. high pressure switch alarm
j. condensate overflow alarm
k. hi/low voltage alarm
l. fan "ON/AUTO" position of space thermostat as specified above
m. unoccupied / occupied command
n. cooling command
o. heating command
p. fan "ON/AUTO" command
q. fault reset command
r. itemized fault code revealing reason for specific shutdown fault (any one of 7)

This option also provides the upgraded 75VA control transformer with load side short circuit and overload protection via a built in circuit breaker.

Warranty:
Climate Master shall warranty equipment for a period of 12 months from start up or 18 months from shipping (which ever occurs first).

Option: Extended 4-year compressor warranty covers compressor for a total of 5 years.

Option: Extended 4-year refrigeration circuit warranty covers coils, reversing valve, expansion valve and compressor for a total of 5 years.

Option: Extended 4-year control board warranty covers the CXM/DXM control board for a total of 5 years.

FIELD INSTALLED OPTIONS

Hose Kits:
All units shall be connected with hoses. The hoses shall be 2 feet (61cm) long, braided stainless steel; fire rated hoses complete with adapters. Only fire rated hoses will be accepted.

Valves:
The following valves are available and will be shipped loose:
a. Ball valve; bronze material, standard port full flow design, FPT connections.
b. Ball valve with memory stop and PT port.
c. "Y" strainer with blowdown valve; bronze material, FPT connections.
d. Motorized water valve; slow acting, 24v, FPT connections.

Hose Kit Assemblies:
The following assemblies ship with the valves already assembled to the hose described:
a. Supply and return hoses having ball valve with PT port.
b. Supply hose having ball valve with PT port; return hose having automatic flow regulator valve with PT ports, and ball valve.
c. Supply hose having "Y" strainer with blowdown valve, and ball valve with PT port; return hose having automatic flow regulator with PT ports, and ball valve.
d. Supply hose having "Y" strainer with blowdown valve, and ball valve with PT port; return hose having ball valve with PT port.

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Thermostats:
The thermostat shall be a ClimateMaster mechanical or electronic type thermostat as selected below with the described features:

a. Single Stage Standard Manual Changeover (ATM11C11)
Thermostat shall be a single-stage, horizontal mount, manual changeover with HEAT-OFF-COOL system switch and fan ON-AUTO switch. Thermostat shall have a mechanical temperature set point indicator. Thermostat shall only require 4 wires for connection. Mercury bulb thermostats are not acceptable.

b. Single Stage Digital Auto or Manual Changeover (ATA11U01)
Thermostat shall be a single-stage, digital, auto or manual changeover with HEAT-OFF-COOL-AUTO system switch and fan ON-AUTO switch. Thermostat shall have an LCD display with temperature and set-point(s) in °F or °C. The Thermostat shall provide permanent memory of set-point(s) without batteries. A fault LED shall be provided to display specific fault condition. Thermostat shall provide temperature display offset for custom applications.

c. Single Stage Digital Automatic or Manual Changeover with Two-Speed Fan Control (ATA11C04) – DXM and PSC Fan required
Thermostat shall be a single-stage, digital, auto or manual changeover with HEAT-OFF-COOL-AUTO system switch, fan ON-AUTO switch, and fan LO-HI switch. Thermostat shall have an LCD display with temperature and set-point(s) in °F or °C. A fault LED shall be provided to display specific fault condition. Thermostat shall allow use of an accessory remote temperature sensor (AST009), but may be operated with internal sensor via orientation of a jumper.

d. Multistage Digital Automatic Changeover (ATA22U01)
Thermostat shall be multi-stage (2H/2C), manual or automatic changeover with HEAT-OFF-COOL-AUTO-EM HEAT system settings and fan ON-AUTO settings. Thermostat shall have an LCD display with temperature, set-point(s), mode, and status indication. The temperature indication shall be selectable for °F or °C. The thermostat shall provide permanent memory of set-point(s) without batteries. A fault LED shall be provided to indicate specific fault condition(s). Thermostat shall provide temperature display offset for custom applications. Thermostat shall allow unit to provide better dehumidification with optional DXM controller by automatically using lower fan speed on stage 1 cooling (higher latent cooling) as main cooling mode, and automatically shifting to high speed fan on stage 2 cooling.

e. Multistage Manual Changeover Programmable 5/2 Day (ATP21U01)
Thermostat shall be 5 day/2 day programmable (with up to 4 set points per day), multi-stage (2H/1C), manual changeover with HEAT-OFF-COOL-EM HEAT system settings and fan ON-AUTO settings. Thermostat shall have an LCD display with temperature, set-point(s), mode, and status indication. The temperature indication shall be selectable for °F or °C. The thermostat shall provide permanent memory of set-point(s) without batteries. Thermostat shall provide convenient override feature to temporarily change set point.

f. Multistage Automatic or Manual Changeover Programmable 7 Day (ATP32U03)
Thermostat shall be 7 day programmable (with up to 4 set points per day), multi-stage (3H/2C), automatic or manual changeover with HEAT-OFF-COOL-AUTO-EM HEAT system settings and fan ON-AUTO settings. Thermostat shall have a blue backlit dot matrix LCD display with temperature, set-points, mode, and status indication. The temperature indication shall be selectable for °F or °C. Time display shall be selectable for 12 or 24 hour clock. Fault identification shall be provided (when used with ClimateMaster CXM or DXM controls) to simplify troubleshooting by providing specific unit fault at the thermostat with red backlit LCD during unit lockout. The thermostat shall provide permanent memory of set-points without batteries. Thermostat shall provide heating set-point range limit, cooling set-point range limit, temperature display offset, keypad lockout, dead-band range setting, and inter-stage differential settings. Thermostat shall provide progressive recovery to anticipate time required to bring space temperature to the next programmed event. Thermostat shall provide an installer setup for configuring options and for setup of servicing contractor name and contact information. Thermostat shall allow the use of an accessory remote and/or outdoor temperature sensor (AST008). Thermostat navigation shall be accomplished via five buttons (up/down/right/left/select) with menu-driven selections for ease of use and programming.

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g. Multistage Automatic or Manual Changeover Programmable 7 Day with Humidity Control (ATP32U04)
Thermostat shall be 7 day programmable (with up to 4 set points per day), multi-stage (3H/2C), automatic or manual changeover with HEAT-OFF-COOL-AUTO-EM HEAT system settings and fan ON-AUTO settings. Separate dehumidification and humidification set points shall be configurable for discreet outputs to a dehumidification option and/or an external humidifier. Installer configuration mode shall allow thermostat dehumidification mode to operate with ClimaDry® reheat or with ECM fan dehumidification mode via settings changes. Thermostat shall have a blue backlit dot matrix LCD display with temperature, relative humidity, set-points, mode, and status indication. The temperature indication shall be selectable for °F or °C. Time display shall be selectable for 12 or 24 hour clock. Fault identification shall be provided (when used with ClimateMaster CXM or DXM controls) to simplify troubleshooting by providing specific unit fault at the thermostat with red backlit LCD during unit lockout. The thermostat shall provide permanent memory of set-points without batteries. Thermostat shall provide heating set-point range limit, cooling set-point range limit, temperature display offset, keypad lockout, dead-band range setting, and inter-stage differential settings. Thermostat shall provide progressive recovery to anticipate time required to bring space temperature to the next programmed event. Thermostat shall provide an installer setup for configuring options and for setup of servicing contractor name and contact information. Thermostat shall allow the use of an accessory remote and/or outdoor temperature sensor (AST008). Thermostat navigation shall be accomplished via five buttons (up/down/right/left/select) with menu-driven selections for ease of use and programming.

DDC Sensors:
ClimateMaster wall mounted DDC sensor to monitor room temperature and interfaces with optional interface system described above. Several types as described below:
a. Sensor only with no display (LON and MPC).
b. Sensor with override (LON only).
c. Sensor with setpoint adjustment and override (MPC only).
d. Sensor with setpoint adjustment and override, LCD display, status/fault indication (LON and MPC).

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Revision Log

Date:	Item:	Action:
7/17/13	EAT Minimum Limit ClimaDry	Updated
02/26/13	AHRI Table	Size 018 PSC Updated
01/07/13	Physical Data Table TS Vertical Upflow - Dimensional Data - TSV Right Return	Updated Updated Blower Orientation
09/27/12	EAT Limits Recommended Minimum Installation Clearances for Vertical Units *	Updated
02/20/12	Engineering Specifications	Updated
02/02/12	ClimaDry® II option Information	Merge data from ClimaDry® II Submittal
12/14/11	ECM Control	Updated CFM adjust settings
11/02/11	Decoder	Updated
10/19/11	Dimensional Data, Optional Filter Frame	Added
08/09/11	Unit Maximum Working Water Pressure	Updated to Reflect New Safeties
08/03/11	Engineering Specifications	Added Digital Night Setback with Pump Restart (DXM w/ ATP32U03/04)
06/17/11	Coated Air Coil Option	Changed Description
05/16/11	Electrical Data 018E and 024F ISP	Added
04/07/11	Engineering Specification NOTICE	Updated
02/11/11	Performance Data Selection Notes	Updated
01/03/11	Format - All Pages	Updated
09/29/10	ECM Electrical Data	Updated
09/28/10	Engineering Specifications	Updated
09/07/10	ECM Blower Control	Added Ramp Down Feature
09/01/10	Engineering Specifications	Updated
08/24/10	Horizontal Units	Supply Air Dimension M and Q updated
07/26/10	Wiring Diagrams	Updated
07/26/10	Compressor Mounting Information and Graphics	Updated to Reflect Spring/Grommet Change
06/11/10	Format - All Pages	Updated
06/11/10	Engineering Specifiations	Updated
06/01/10	TSH S.A. Dimensions	Dimension M & Q changed
03/30/10	Performance Data/Blower Data	Size 018 data changes
05/27/09	Stand-Alone and Big Book Submittals	Consolidated
04/29/09	Electrical Data Table (High Static PSC Motor & Secondary Pump)	036 E Data Corrected
04/29/09	Performance Data IP Table Corrected	
11/17/08	TS HorizontaL Data Table	Data Corrected
09/19/08	Engineering Specifications	ClimaDry® Note Added
08/26/08	Physical Data Table	Max Working Pressure Table Added
08/01/08	Electrical Data Table	Asterisks Added
08/0407	All	Added Sizes 006, 009, & 012
05/14/07	All	Updated Size 018 for Rev.: B
04/19/07	Table of Contents	Added Table of Contents
04/19/07	Specifications	Updated Specifications for new Safety Agency
12/14/06	Dimensional Data	Corrected TSH18-030 Supply dimensions
11/16/06	Electrical Data	Various updates
11/16/06	Dimensional Data	Updated dimensional data to new format
11/16/06	Performance Data/Blower Data	Added new rated voltage note
11/19/06	Specifications	Updated thermostat offering
11/19/06	Wiring Diagrams	Added pressure switch for motorized valve option
07/19/06	Electrical Data	Added secondary pump data, updated ClimaDry® data, various formatting changes
07/19/06	ECM Blower Performance	Updated CFM data
07/19/06	Performance Data	Added low temperature selection notes
12/23/05	Motorized Valves	Added Cv, MOPD, and WPD data
11/30/05	Tables	Updated all tables to new format
11/30/05	Dimensional data	Added new dimensional drawings and installation and service notes
11/30/05	Physical Data	Added Coax volumes
11/30/05	Blower Data, Electrical Data, Unit Specifications	Added ClimaDry® Reheat option
08/15/05	Correction Factors	Updated verbiage - No data changes
08/15/05	Physical Data	Added Coax volume chart
08/15/05	Dimensional Data	Added corner weights - Horizontal units
08/15/05	Electrical Data	Updated 030 “E” voltage total unit FLA & MCA
08/15/05	Specifications	Updated verbiage in CXM section
06/20/05	Entire Document	Updated to Adobe Acrobat 7.0
06/20/05	Electrical Data	Removed TS024 265V data
06/20/05	ECM Motor	Added Information on new interface board
06/20/05	Specifications	Updated specs to include mufflers
03/30/05	Electrical Data	Updated 018, 024, 030
03/30/05	Horizontal Dimensions	Updated dim. “H”
03/30/05	Added Revision Log	

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